S. HRG. 100-588

NATIONAL APPLIANCE ENERGY CONSERVATION AMENDMENTS OF 1988

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY REGULATION AND CONSERVATION

OF THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

SECOND SESSION

ON

S. 2167

TO AMEND THE ENERGY POLICY AND CONSERVATION ACT TO PROVIDE FOR FEDERAL ENERGY CONSERVATION STANDARDS FOR FLUORESCENT LAMP BALLASTS

MARCH 29, 1988

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NATIONAL APPLIANCE ENERGY CONSERVATION AMENDMENTS OF 1988

TUESDAY, MARCH 29, 1988

U.S. SENATE,
SUBCOMMITTEE ON ENERGY REGULATION AND CONSERVATION,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:45 a.m., in room SR-366, Dirksen Senate Office Building, Hon. Timothy E. Wirth, presiding.

OPENING STATEMENT OF HON. HOWARD M. METZENBAUM, U.S. SENATOR FROM OHIO

Senator METZENBAUM. The committee will come to order. The Chair is just going to make an opening statement. Senator Wirth is going to preside, if he would be good enough.

Senator WIRTH. I would be happy to do so. Thank you.

Senator METZENBAUM. First of all, let me express publicly my appreciation to Senator Wirth for taking on the responsibilities of chairing this hearing. I thought I was not going to be able to make it, but I just wanted to come over and make a short statement.

As Chairman of the Subcommittee on Energy Regulation and Conservation, I am pleased to see S. 2167 moving forward in the legislative process. The reasons for its enactment are compelling. This legislation can make an important contribution to our nation's energy policy by promoting energy efficiency and by reducing our national demand for electricity.

Experts estimate that energy savings from enactment of this bill will reach 1 percent of the nation's electrical demand. That is a fantastic amount. It does not sound like much, but let me put it another way. This reduction in demand can be translated into over $10 billion in savings for consumers by the year 2000. For utilities, these savings mean that new powerplant construction can be deferred, thus contributing to additional consumer savings.

A second but equally important benefit of this legislation is that it will bring uniform regulation to the fluorescent ballast industry. S. 2167 would replace a patchwork of State ballast standards with a single national standard. This uniformity will reduce industry's costs and thus yield even greater benefits to the consumer.

In sum, S. 2167 is a win-win proposal. Consumers can save money. Industry reduces its regulatory burden, and the nation gets an important addition to its energy policy which promotes energy

efficiency, enhances national security, and furthers the nation's competitiveness in world trade.

Just last week the World Watch Institute of Washington came out with a study showing that a country's level of energy efficiency is a major indicator of its competitiveness. The study also showed that Japan has done much more to reduce energy use than the United States.

Yet despite all this, the administration once again opposes energy efficiency standards because they impose undue regulatory burden on private industry.

The administration opposes a bill to save energy, protect the environment, reduce reliance on energy imports, and improve the nation's competitiveness, save industry and consumers' money. It is absolutely unbelievable and incredible.

This administration sometimes puts its head in the sand and is totally unwilling to realize the kind of world in which we live. All of this administration opposition arises despite the fact that even the industry supports the bill.

Now, if we were imposing it on the industry it might be somewhat understandable to have the administration opposing it, but this obtuse attitude of an administration, sometimes I wonder whether they really know who is running the show and why it is being run. They write great speeches for the President, and he reads them well, but I have real questions as to whether or not this administration knows where it is going.

Let me give you some of the other groups supporting this bill: the National Electrical Manufacturers Association, representing the ballast manufacturing industry; the National Resources Defense Council; the Alliance to Save Energy; the National Association of State Energy Officials; the National Association of Regulatory Utility Commissioners; the Consumer Energy Council; the Fund for Renewable Energy and Environment; and the American Public Power Association.

Last year Congress enacted Public Law 100–12 over the President's veto, which established efficiency standards for 12 household appliances. S. 2167 would expand these standards to include fluorescent light ballasts.

The energy savings from this single addition would increase the estimated energy savings from all appliance standards by roughly 50 percent. Congress overwhelmingly approved Public Law 100–12 last year, and I anticipate passage of S. 2167 this year despite the administration's opposition.

I thank those who have come to testify today, and I especially appreciate the cooperation of my colleague from Colorado, Senator Wirth, who has so graciously agreed to chair the meeting.

[The text of S. 2167 follows:]

II

100TH CONGRESS
2D SESSION

S. 2167

To amend the Energy Policy and Conservation Act to provide for Federal energy conservation standards for fluorescent lamp ballasts.

IN THE SENATE OF THE UNITED STATES

MARCH 15 (legislative day, MARCH 14), 1988

Mr. METZENBAUM (for himself, Mr. JOHNSTON, Mr. FORD, Mr. WEICKER, Mr. WIRTH, and Mr. EVANS) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

---

A BILL

To amend the Energy Policy and Conservation Act to provide for Federal energy conservation standards for fluorescent lamp ballasts.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be referred to as the "National Appliance Energy Conservation Amendments of 1988".

SEC. 2. AMENDMENTS FOR FLUORESCENT LAMP BALLASTS.

(a) DEFINITION.—(1) Section 321(a) of the Energy Policy and Conservation Act (42 U.S.C. 6291(a)) is amended by adding the following new paragraph at the end:

"(29)(A) The term 'fluorescent lamp ballast' means a device which is used to start and operate fluorescent lamps by providing a starting voltage and current and limiting the current during normal operation.

"(B) The term 'ANSI standard' means a standard developed by a committee accredited by the American National Standards Institute.

"(C) The term 'ballast efficacy factor' means the relative light output divided by the power input of a fluorescent lamp ballast.

"(D)(i) The term 'F40T12 lamp' means a nominal 40 watt tubular fluorescent lamp which is 48 inches in length and one-and-a-half inches in diameter, and conforms to ANSI standard C78.1–1978(R1984).

"(ii) The term 'F96T12 lamp' means a nominal 75 watt tubular fluorescent lamp which is 96 inches in length and one-and-a-half inches in diameter, and conforms to ANSI standard C78.3–1978(R1984).

"(iii) The term 'F96T12HO lamp' means a nominal 110 watt tubular fluorescent lamp which is 96 inches in length and one-and-a-half inches in diameter, and conforms to ANSI standard C78.1–1978(R1984).

"(E) The term 'input current' means the root-mean-square (RMS) current in amperes delivered to a fluorescent lamp ballast, as determined in accordance

with the test procedures specified in ANSI standard C82.2–1984.

"(F) The term 'luminaire' means a complete lighting unit consisting of a fluorescent lamp or lamps, together with parts designed to distribute the light, to position and protect such lamps, and to connect such lamps to the power supply through the ballast.

"(G) The term 'nominal input voltage' means the rated input voltage of a fluorescent lamp ballast.

"(H) The term 'nominal lamp watts' means the wattage at which a fluorescent lamp is designed to operate.

"(I) The term 'power factor' means the power input divided by the product of input voltage and input current of a fluorescent lamp ballast.

"(J) The term 'power input' means the power consumption in watts of a ballast and fluorescent lamp or lamps, as determined in accordance with the test procedures specified in ANSI standard C82.2–1984.

"(K) The term 'relative light output' means the light output delivered through the use of a ballast divided by the light output delivered through the use of a reference ballast, expressed as a percent, as determined in accordance with the test procedures specified in ANSI standard C82.2–1984.

"(L) The term 'residential building' means a structure or portion of a structure which provides facilities or shelter for human residency, except that such term does not include any multifamily residential structure of more than three stories above grade.".

(2) Section 321(a)(6)(B) of such Act (42 U.S.C. 6291(a)(6)(B)) is amended by striking out "(13)" and inserting in lieu thereof "(14)".

(b) COVERAGE.—Section 322(a) of such Act (42 U.S.C. 6292(a)) is amended—

(1) by redesignating paragraph (13) as paragraph (14); and

(2) by inserting after paragraph (12) the following:

"(13) Fluorescent lamp ballasts.".

(c) TEST PROCEDURES.—Section 323(b) of such Act (42 U.S.C. 6293(b)) is amended by adding at the end the following:

"(5) With respect to fluorescent lamp ballasts manufactured on or after January 1, 1990, and to which standards are applicable under section 325, the Secretary shall, no later than July 1, 1989, prescribe test procedures that are in accord with ANSI standard C82.2–1984.".

(d) LABELING.—Section 324 of such Act (42 U.S.C. 6294) is amended—

(1) in subsection (a)(2)—

(A) by striking out "(2) The" and inserting in lieu thereof "(2)(A) The"; and

(B) by adding at the end the following:

"(B) The Commission shall prescribe labeling rules under this section applicable to the covered product specified in paragraph (13) of section 322(a) and to which standards are applicable under section 325. Such rules shall provide that the labeling of any fluorescent lamp ballast manufactured on or after January 1, 1990, will indicate conspicuously, in a manner prescribed by the Commission under subsection (b) by July 1, 1989, a capital letter 'E' printed within a circle on the ballast and on the packaging of the ballast or of the luminaire into which the ballast has been incorporated.".

(2) by striking out "(13)" and inserting in lieu thereof "(14)" in subsection (a)(3) and in paragraphs (1)(B), (3), and (5) of subsection (b); and

(3) by adding at the end of subsection (c) the following;

"(7) Paragraphs (1), (2), (3), (5), and (6) of this subsection shall not apply to the covered product specified in paragraph (13) of section 322.".

(e) STANDARDS.—(1) Subsection (g) of section 325 of such Act (42 U.S.C. 6295(g)) is amended—

(A) by inserting; FLUORESCENT LAMP BALLASTS; after "DRYERS" in the heading; and

(B) by adding at the end the following:

"(5) Except as provided in paragraph (6), each fluorescent lamp ballast—

"(A)(i) manufactured on or after January 1, 1990;

"(ii) sold by the manufacturer on or after April 1, 1990; or

"(iii) incorporated into a luminaire by a luminaire manufacturer on or after April 1, 1991; and

"(B) designed—

"(i) to operate at nominal input voltages of 120 or 277 volts;

"(ii) to operate with an input frequency of 60 Hertz; and

"(iii) for use in connection with an F40T12, F96T12, or F96T12HO lamps;

shall have a power factor of 0.90 or greater and shall have a ballast efficacy factor not less than the following:

Application for Operation of	Ballast Input Voltage	Total Nominal Lamp Watts	Ballast Efficacy Factor
one F40T12 lamp	120	40	1.805
	277	40	1.805
two F40T12 lamps	120	80	1.060
	277	80	1.050
two F96T12 lamps	120	150	0.570
	277	150	0.570
two F96T12HO lamps	120	220	0.390
	277	220	0.390

"(6) The standards described in paragraph (5) do not apply to (A) a ballast which is designed for dimming or for use in ambient temperatures of 0° F or less, or (B) a ballast

which has a power factor of less than 0.90 and is designed for use only in residential building applications.

"(7)(A) The Secretary shall publish a final rule no later than January 1, 1992, to determine if the standards established under paragraph (5) should be amended, including whether such standards should be amended so that they would be applicable to ballasts described in paragraph (6) and other ballasts. Such rule shall contain such amendment, if any, and provide that the amendment shall apply to products manufactured on or after January 1, 1995.

"(B) After January 1, 1992, the Secretary shall publish a final rule no later than five years after the date of publication of a previous final rule. The Secretary shall determine in such rule whether to amend the standards in effect for fluorescent lamp ballasts, including whether such standards should be amended so that they would be applicable to additional ballasts.

"(C) Any amendment prescribed under subparagraph (B) shall apply to products manufactured after a date which is five years after—

"(i) the effective date of the previous amendment; or

"(ii) if the previous final rule did not amend the standards, the earliest date by which a previous amendment could have been effective;

except that in no case may any amended standard apply to products manufactured within three years after publication of the final rule establishing such amended standard.".

(2) Subsection (i) of section 325 of such Act (42 U.S.C. 6295(i)) is amended by striking out "(13)" in paragraphs (1) and (2) and inserting in lieu thereof "(14)".

(3) Section 325 of such Act (42 U.S.C. 6295) is amended—

(A) in subsection (j)(B)—

(i) by inserting "fluorescent lamp ballasts," after "clothes dryers,"; and

(ii) by striking out "hearing" and inserting in lieu thereof "heating"; and

(B) in subsection (k)—

(i) by inserting "and in paragraph (13)" after "(11)" in paragraph (1); and

(ii) by inserting "fluorescent lamp ballasts," after "clothes dryers," in paragraph (3)(B).

(f) EFFECT ON OTHER LAW.—(1) Section 327(b)(1) of such Act (42 U.S.C. 6297(b)(1)) is amended by inserting before the semicolon at the end the following: ", or in the case of any portion of any regulation which establishes requirements for fluorescent lamp ballasts, was prescribed or enacted before the date of the enactment of the National Appliance Energy Conservation Amendments of 1988".

(2) Section 327(b)(4) of such Act (42 U.S.C. 6297(b)(4)) is amended by inserting before the semicolon at the end the following: ", or is a regulation (or portion thereof) regulating fluorescent lamp ballasts other than those to which paragraph (5) of section 325(g) is applicable".

(3) Section 327(c)(1) of such Act (42 U.S.C. 6297(c)(1)) is amended by inserting before the semicolon at the end the following: ", except that a State regulation (or portion thereof) regulating fluorescent lamp ballasts other than those to which paragraph (5) of section 325(g) is applicable shall be effective only until the effective date of a standard that is prescribed by the Secretary under paragraph (7) of such section and is applicable to such ballasts".

○

STATEMENT OF HON. TIMOTHY E. WIRTH, U.S. SENATOR FROM COLORADO

Senator WIRTH [presiding]. Thank you very much, Senator Metzenbaum. I am sorry not to have been here a little bit earlier. Secretary Carlucci had a last-minute breakfast on the INF hearing, and that has fouled up the morning.

Today the subcommittee will, as Senator Metzenbaum has pointed out, receive testimony on S. 2167, the National Appliance Energy Conservation Amendments of 1988. This legislation will amend the Energy Policy and Conservation Act to provide for Federal energy efficiency standards for fluorescent lamp ballasts.

Ballasts are the component of fluorescent lamp fixtures which convert source electricity into the characteristics needed to operate fluorescent lamps. This legislation would establish energy efficiency standards which would result in an estimated 10 percent increase in ballast efficiency and an estimated 1 percent decrease in our nation's electrical energy demand.

This legislation strengthens our nation's energy policy, and an additional benefit of this legislation is that it would reduce the regulatory burden on industry by replacing a patchwork of State ballast standards with a single Federal standard.

I am pleased to announce that in addition to the support of the energy conservation groups and the manufacturing industry which developed this proposal, the subcommittee, as pointed out earlier by Senator Metzenbaum, has also received statements of support from the National Association of State Energy Officials, and the National Association of Regulatory Utility Commissioners.

With such broad support and obvious benefits, I am very optimistic regarding enactment of this proposal.

I appreciate the attendance of our witnesses today and apologize for the fact that we are getting close to a number of things going on on the floor with a closed session this morning to explore potential violations of the various treaties in front of us and a caucus coming up soon after that, banking legislation and so on on the floor.

So I would hope that all of you will recognize the rules of the committee. I am sure you are familiar with those. Your statements will be included in full in the record. What I would hope you might do is to be able to summarize those in five minutes or less for the record, and then we can proceed as expeditiously as possible.

Let me, as another opening comment, say that I am just so pleased to have you here. Energy policy gets so remarkably little discussion in this day and age. It is as if the assumption downtown is that the energy problem has gone away, which, of course, it has not.

The Straits of Hormuz are just as narrow today as they were 10 years ago and 20 years ago, and I would suspect the politics of that area of the world are more problematic today than they were 10 years ago or 20 years ago.

Also, when we talked about energy policy before in the government, we had a positive balance of payments. Today it is negative. If you just look at the energy curve, it is getting worse and worse.

I believe today we are importing about $45 billion worth of oil. The projections are that at current rates the cost is going to double in the next four or five years to $90 billion, not a very salutory figure as we look at the very severe problems of our meeting, our balance of payment problems.

Clearly, energy conservation has a major role to play in this. As many of you know, I recently took over the chairmanship of the Alliance to Save Energy, a national group, simply because I think we all have to do everything we can to put our shoulder behind the wheel and to really help with the question of energy conservation.

The problem of balance of payments and conservation is obviously further exacerbated by the environmental impacts which we are all increasingly aware of. Anytime the greenhouse effect makes the cover of Sports Illustrated, you know that something is happening. The country is becoming aware slowly but surely of the very significant atmospheric problems being created by our current energy policy.

I hope that people also understand and make the linkage between what we have recently understood about the ozone layer and CFTCs and relate that back to what we are doing in terms of putting all this up into the atmosphere for the purpose of creating more energy.

It is my opinion that we ought to put a much greater emphasis on using less energy. That is going to be a lot more cost effective. That is going to be a much better way for us to do business in this country. The taxpayer ends up a lot better off, and yet we have, as Senator Metzenbaum pointed out, an administration that refuses to recognize the imperatives of economics. If we let the marketplace do it, the marketplace is certainly going to dictate conservation.

As a final note, I was saddened by pieces in Sunday's New York Times on Sunday, March 27. You all might have seen in the business page two articles. We were gratified to see that they were on energy policy; unfortunately, neither of them really addressed the issue of energy conservation.

I do not know if you saw that. They talk about various regulatory policies, talk about the need for research, but the single most important thing that we can do, conservation, was not part of the themes laid out either by the article by John Sawhill and Lester Silverman on "The U.S. Needs a New Energy Strategy Now" or by Bernard Weinstein on "Japan is Spending Heavily to Avoid Oil."

Conservation is such an obvious item that it even gets missed when there is a rare discussion of it.

Finally, Senator Metzenbaum, mentioning the World Watch study, is absolutely accurate. I think that is the best piece that has been out in some time, and I would hope that the efforts of the legislation S. 2167 will be moving very quickly so that we can be consistent with the very clear imperative laid out in the World Watch study out last week.

So gentlemen, thank you very much for being here.

Mr. Pucillo, why not start, and we will just move right down the line.

Our first witness is Mr. Anthony Pucillo, president of the Magne-Tek Universal Manufacturing Corporation of Paramus, New Jersey.

Then we will go to Mr. Richard Geissler, Executive Director of the National Lighting Bureau, National Electrical Manufacturers Association in Washington; then Mr. Howard Geller, Associate Director, American Council for an Energy-Efficient Economy, also in Washington; and finally, Mr. Peter Miller, Energy Policy Consultant with NRDC.

Mr. Pucillo.

STATEMENT OF ANTHONY J. PUCILLO, PRESIDENT, MAGNETEK UNIVERSAL MANUFACTURING CO.

Mr. PUCILLO. Thank you for giving me the opportunity to appear today on behalf of the members of the Lighting Equipment Division of the National Electrical Manufacturers Association. I am Anthony Pucillo, President of MagneTek Universal Manufacturing, a leading producer of fluorescent lamp ballasts and other devices used in lighting.

I am also Executive Vice President of MagneTek Corporation, the parent company of Universal. MagneTek manufactures a broad range of products in more than 80 facilities throughout the United States.

Universal, together with the other major producers of lamp ballasts, has long advocated more energy efficient products. We believe that such devices are cost effective for the consumer, save energy, and help preserve the environment.

To assist the subcommittee in better understanding the importance of S. 2167, I would like to provide some background on fluorescent ballast technology and marketing. Introduced in 1938, fluorescent lighting has become the predominant source of ambient illumination in most offices, commercial establishments, institutions and manufacturing facilities in the U.S. today.

Fluorescent lamps are actually low pressure mercy arc discharge devices which require a special transformer called a ballast to start and operate. The ballast is the essential link between the electric branch circuit and the lamps. To the general public, however, the ballast is the least known element of fluorescent lighting systems.

Most are installed inside fluorescent luminaires by fixture manufacturers and operate without notice for some 15 to 20 years.

Because of the proliferation during the past few decades of fluorescent lamp types and wattages, now ranging from four watts to 200 watts, the business of designing and manufacturing ballasts has become a complex and highly specialized field. It is also an extremely competitive one. As lamp producers and fixture manufacturers develop new systems to meet increasing end user demands for better, more cost effective lighting, ballast companies must aggressively work to keep pace.

At the same time, our industry is under continuing pressure to reduce operating costs. As a result, only the most efficient companies have survived. Where once there were more than 100 domestic ballast companies, there are less than 10 major firms today. Such a dynamic market requires successful companies to invest large amounts of capital in plants and tooling and to conduct product research and development while controlling costs.

We are well aware that even if a product is very energy efficient, its first cost plays an important role in whether it is accepted by the market.

For an example of the pressure to provide quality products at low prices, one only has to look at the ballasts covered in this bill, the most popular is the 40-watt rapid start. It sells today for 20 percent less than it did in 1950 in constant dollars. This decrease has been achieved despite the quadrupling of labor and material costs during the same period.

Part of my industry success is due to the fact that we operate on a national scale. Ballasts are mass produced, distributed by the palletload and find their way into products sold in every city in the country. We rely on economies of scale and efficiencies of distribution.

It would be impossible to continue to provide quality products at low costs if we had to tailor our products and distribution to each of the 50 states. Consistency, having uniform nationwide rules, allows us to be the most efficient and provide the customer with the greatest value.

We have not, however, relied upon uniform product lines. Each of the major ballast companies has developed energy efficient products, products which already meet or exceed the minimum efficiency level proposed in S. 2167.

They were introduced in the mid-1970s in response to markets hit with spiraling electrical costs. As more and more customers were faced with increased rates, it became cost effective to invest in more energy efficient lighting systems.

My competitor, Ernest Freegard from Advanced Transformer, a North American Phillips Company, testified before the Energy and Power Subcommittee of the House Energy and Commerce Committee last week. He developed a matrix comparing the energy cost of operating a standard ballast versus an energy saving ballast over a 20 year life. In both instances, the comparisons were done using standard fluorescent lamps.

I do not need to read that. The data in that comparison is a matter of record.

It should also be noted that the more efficient ballast normally lasts twice as long as standard ballasts. While NEMA is compiling——

Senator WIRTH. Mr. Pucillo, let me ask if you might summarize your statement. Would that be a possibility?

Mr. PUCILLO. What was established was a table, Figure 1 of this testimony, entitled "System Energy Cost Comparison', total energy costs over a 20-year period comprising the use of standard fluorescent lamps. It shows savings of approximately 10 percent over that 20-year period on energy saving ballasts versus standard ballasts.

An example, the largest single product used in fluorescent lighting, a two-lamp 40 watt rapid start system, which would mean ballast and lamps, the standard ballast cost over that 20-year period would be calculated at $454.27, with the energy saving ballast $406.95, projected savings per ballast over that period $47.32. When you multiply that by literally hundreds of millions of those units that are in existence and operating today, it just becomes a phenomenal number.

Is that sufficient as far as a summary?

Senator WIRTH. Is that sufficient for your testimony over all? We are going to include your statement in full in the record, Mr. Pucillo.

Mr. PUCILLO. There are three other lamp types indicated, but the one I just gave as an example is certainly by far the largest in use. I can go through the other three.

Senator WIRTH. Fine. May we go to Mr. Geissler, then?

Mr. PUCILLO. I have just another minute or so left in the statement.

Senator WIRTH. If you could do that, that would be great.

Mr. PUCILLO. It should also be noted that the more efficient ballast normally lasts twice as long as standard ballasts. While NEMA is compiling industrywise cost comparison figures in response to questions asked during the House Committee hearing, it is fair to say the additional first cost difference between the standard and energy saving ballast in each category is about 25 percent.

The difference is due to the need for more expensive materials. This modest increase, even in areas of low energy costs, is quickly paid back to the investor.

My company as well as all of the other NEMA ballast manufacturers are aggressively marketing more efficient product to the commercial industrial sector. In 1977, less than 1 percent of the units sold in the U.S. were classified as energy saving ballasts. By 1980, between 10 and 15 percent were in this category.

Today, we estimate that about 33 percent of the fluorescent ballasts for F40T12 and F96T12 applications are energy saving units. I would like to remind the subcommittee that these are the same ballasts which are required under S. 2167. The bill does not require development of any new technology. It is already in place.

Further market penetration has been hampered by changes in the building market. Today the person who specifies and pays for the installation of lighting systems is generally not the same person who pays the energy bill.

A large portion of today's commercial construction is speculative. It is built at the lowest possible cost and sold or leased to the end users. It is that end user who picks up the energy tab. This lack of relationship between budgets and between the first cost investment and the long-term operating expense dampens the market penetration of energy efficient dollars.

Therefore, the ballast industry wholeheartedly supports legislative action which promotes energy efficiency and at the same time saves money for the ultimate user. S. 2167 is minimal legislation. It proposes to set ballast efficiency factors for F40T12 rapid start, F96T12 slim line, and F96T12 high output rapid start lamp ballasts. That constitutes approximately 90 percent of the fluorescent lighting used in commercial industrial applications.

Again, using Mr. Freegard's figures presented last week before the House hearing, it is fair to say commercial building lighting systems operate 65 hours a week and average 3,380 hours annually. The accepted commercial average energy cost is 7 cents per kilowatt hour. The total avoided energy costs in the national commercial industrial market are estimated to be $89.4 million annually. Calculations are shown in the graphs submitted in this report.

Industry strongly supports S. 2167. It is good for the customer and an easy-to-regulate burden on industry. It saves energy and preserves our environment. It is a win-win piece of legislation which we hope you will support. I will be glad to answer any questions in this regard.

Thank you very much.

[The prepared statement of Mr. Pucillo follows:]

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STATEMENT

OF

ANTHONY J. PUCILLO

PRESIDENT
MAGNETEK UNIVERSAL MANUFACTURING
AND
EXECUTIVE VICE PRESIDENT OF
MAGNETEK CORPORATION

AND

MEMBER OF THE BALLAST SECTION

OF THE

LIGHTING EQUIPMENT DIVISION
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

ON

S. 2167 THE 1988 AMENDMENTS TO THE
NATIONAL APPLIANCE ENERGY CONSERVATION ACT

BEFORE THE

SUBCOMMITTEE ON ENERGY REGULATION AND CONSERVATION

OF THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

U.S. SENATE

MARCH 29, 1988

Statement of

Mr. Anthony J. Pucillo
President
MagneTek Universal Manufacturing
A MagneTek Corporation Company

and

Member of the Ballast Section

On behalf of the

LIGHTING EQUIPMENT DIVISION
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION[1]

March 29, 1988

Thank you for giving me an opportunity to appear today on behalf of the members of the Lighting Equipment Division of the National Electrical Manufacturers Association.

I am Anthony Pucillo, president of MagneTek Universal Manufacturing, a leading producer of fluorescent lamp ballasts and other devices used in lighting. I am also executive vice president of MagneTek Corporation, the parent company of Universal. MagneTek manufactures a broad range of products in more than 80 facilities throughout the country.

Universal, together with the other major producers of lamp ballasts, has long advocated more energy efficient products. We believe that such devices are cost effective for the consumer, save energy, and help preserve the environment. To assist the Subcommittee in better understanding the importance of S. 2167, I would like to provide some background on fluorescent ballast

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[1] NEMA, founded in 1926, is the Nation's largest professional trade association for domestic manufacturers of electrical products for the generation, transmission, distribution and end-use of electric power.

technology and marketing.

Introduced in 1938, fluorescent lighting has become the predominate source of ambient illumination in most offices, commercial establishments, institutions and manufacturing facilities in the U.S. today. Fluorescent lamps are actually low pressure mercury arc discharge devices which require a special transformer, called a ballast, to start and operate. The ballast is the essential link between the electric branch circuit and the lamps. To the general public, however, the ballast is the least known element of fluorescent lighting systems. Most are installed inside fluorescent luminaires by fixture manufacturers, and operate without notice for 15 to 20 years.

Because of the proliferation during the past few decades of fluorescent lamp types and wattages (they now range from 4 watts to 200 watts), the business of designing and manufacturing ballasts has become a complex and highly specialized field. It is also an extremely competitive one.

As lamp producers and fixture manufacturers develop new systems to meet increasing end-user demands for better, more cost-effective lighting, ballast companies must aggressively work to keep pace. At the same time, our industry is under continuing pressure to reduce operating costs. As a result, only the most efficient companies have survived; where once there were more than 100 domestic ballast companies, there are less than 10 major firms today.

Such a dynamic market requires successful companies to invest large amounts of capital in plants and tooling, and conduct product research and development, while controling costs.

We are well aware that even if a product is very energy efficient, its first cost plays an important role in whether it is accepted by the market. As an example of the pressure to provide quality products at low prices, one only has to look at the ballasts covered in this bill. The most popular is the 40-watt rapid start. It sells today for 20 percent less than it did in 1950 (in constant dollars). This decrease has been achieved despite the quadrupling of labor and material costs during the same period.

Part of my industry's success is due to the fact that we operate on a national scale; ballasts are mass produced, distributed by the pallet load, and find their way into products sold in every city in the country. We rely on economies of scale and efficiencies of distribution. It would be impossible to continue to provide quality products at low costs if we had to tailor our products and distribution to each of the 50 states. Consistency, having uniform nation-wide rules, allows us to be the most efficient, and provide the customer with the greatest value.

We have not, however, relied upon uniform product lines. Each of the major ballast companies has developed energy efficient products -- products which already meet or exceed the minimum efficiency levels proposed in S. 2167.

They were introduced in the mid-1970s in response to markets hit with spiraling electricity costs. As more and more customers were faced with increased rates, it became cost effective to invest in more energy efficient lighting systems.

My competitor Ernest Freegard, from Advance Transformer, a

North American Philips Company, testified before the Energy and Power Subcommittee of the House Energy and Commerce Committee last week. He developed a matrix comparing the energy costs of operating a standard ballast vs. an energy saving ballast over a 20-year life. In both instances, the comparisons were done using standard fluorescent lamps.

Figure 1

SYSTEM ENERGY COST COMPARISON[1]
Total Energy Costs Over 20-year Period
(Comparison using standard fluorescent lamps)

System	Standard Ballast	Energy Saving Ballast	Projected Savings
Two-lamp F40T12 RS[2]	$ 454.27	$ 406.95	$ 47.32
One-lamp F40T12 RS	269.72	236.60	33.12
Two-lamp F96T12	818.64	747.66	70.98
Two-lamp F96T12HO	1,216.12	1,121.48	94.64

[1] Based upon 65 hours per week operation, and average commercial energy rate of 7 cents per kWh
[2] RS = Rapid start 40 watt four-foot lamp; the most common type used in the U.S. today.

It should also be noted that the more efficient ballasts normally last twice as long as standard ballasts. While NEMA is compiling industry-wide cost comparison figures in response to questions asked during the House Subcommittee hearing, it is fair to say the additional first-cost difference between the standard and energy savings ballast in each category is about 25 percent. The difference is due to the need for more expensive materials. This modest increase is, even in areas of low energy costs, quickly paid back to the investor.

My company, as well as all of the other NEMA ballast manufacturers, has aggressively marketed the more efficient product to the commercial/industrial sector. In 1977 less than one percent of the units sold in the U.S. were classified as energy saving ballasts. By 1980, between 10 and 15 percent were in this category. Today we estimate that about 33 percent of the fluorescent ballasts sold for F40T12 and F96T12 applications are energy saving units.

I would like to remind the Subcommittee that these are the same ballasts which are required under S. 2167. The bill does not require development of any new technology; it's already in place. Further market penetration has been hampered by changes in the building market. Today, the person who specifies and pays for the installation of lighting system is generally not the same person who pays the energy bills. A large portion of today's commercial construction is speculative -- it is built at the lowest possible cost and sold or leased to end users. It is that end-user who picks up the energy tab.

This lack of relationship between budgets, between the first-cost investment and the long-term operating expense, dampens the market penetration of energy efficient ballasts. Therefore, the ballast industry wholeheartedly supports legislative action which promotes energy efficiency and at the same time saves money for the ultimate end user.

S. 2167 is "minimal legislation." It proposes to set ballast efficiency factors (BEF) for F40T12 rapid start, F96T12 slimline, and F96T12 high output rapid start lamp ballasts. That constitutes approximately 90 percent of the fluorescent lighting

used in commercial/industrial applications.

Again, using Mr. Freegard's figures presented last week before the House hearing, it is fair to say commercial building lighting systems operate 65 hours a week on average, or 3,380 hours annually. The accepted commercial average energy cost is 7 cents per kWh. The total "avoided energy costs" in the national commercial/industrial market are estimated to be $89.4 million annually. The calculations are shown below.

Figure 2

ANNUAL ENERGY SAVINGS BY BALLAST TYPE
(Comparison using standard fluorescent lamps)

	Two Lamp F40T12RS	One Lamp F40T12RS	Two Lamp F96T12	Two Lamp F96T12HO
Input watts using standard ballasts / standard lamps	96	57	173	257
Input watts using energy saving ballast / std lamps	86	50	158	237
Difference in input watts (power saved in watts)	10	7	15	20
Power saved in watts times 3,380 hours per year (expressed in watt hours)	33,800	23,660	50,700	67,600
Power costs avoided per[1] year per ballast	$ 2.37	$ 1.66	$ 3.55	$ 4.73
Quantity of ballasts (estimated in millions)	25.1	1.0	5.7	1.7
Estimated annual total power costs avoided (estimated in millions)	$ 59.5	$ 1.7	$ 20.2	$ 8.0

TOTAL ESTIMATED ANNUAL SAVINGS $ 89,400,000

[1] Based upon 7 cent per kWh average commercial power costs

This projection is based on the assumption that of the approximately 50 million fluorescent ballasts affected by this legislation, one-third are already energy efficient. The remaining two-thirds will be phased in each year, and the savings will be compounded to be $1.341 billion by the end of five years.

Figure 3

CUMULATIVE ENERGY SAVINGS FOR A FIVE-YEAR PERIOD

Savings First Year	$ 89,400,000
Savings Second Year	178,000,000
Savings Third Year	268,200,000
Savings Fourth Year	357,600,000
Savings Fifth Year	447,000,000
FIVE YEAR TOTAL	$ 1.341 Billion

This is a conservative estimate because:

- The market for lamp ballasts will probably expand beyond the 50-million-level each year, and our estimate of savings is based on zero growth.
- The estimate assumes a stable 7 cents per kWh electric rate over all five years. In fact, this rate is expected to increase.

Industry strongly supports S. 2167. It is good for the customer, it eases the regulatory burden on industry, it saves energy and preserves our environment. It is a "win-win" piece of legislation which we hope you will support.

I will be glad to answer any questions.

Thank you.

Senator WIRTH. Thank you, Mr. Pucillo.

Let me again point out for all of you that the testimony will all be included in the record. What we would like you to do if you could is to summarize the points that you think are most appropriate to make.

I am sorry, but we are under a really terrible deadline this morning.

Mr. Geissler.

STATEMENT OF RICHARD GEISSLER, DIVISION MANAGER, LIGHTING EQUIPMENT DIVISION, NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

Mr. GEISSLER. Thank you, Mr. Chairman. I appreciate your time constraints.

My name is Richard Geissler, and I am here representing the National Electrical Manufacturers Association, and I will summarize my statement.

First, I would like to thank the professional staff of the Alliance to Save Energy, of which you are now chairman. They participated in meetings with the representatives of the manufacturing community to help draft this proposal, and we appreciate their input.

Since you are entering the statement of NEMA in the record, I would like to point out just a few basic points.

This is a rather unusual alliance, as those of you who have worked in this area will recognize. Having manufacturers of electrical products sit on the same dais with energy conservation advocates and environmentalists is a rather unusual alliance, the reason being that we have sometime approached the same problem of saving energy and preserving our economy from different viewpoints.

The manufacturers have over the last several years provided the customer with very cost effective lighting and very energy efficient products. They have done this with technological advances. They have, Mr. Chairman, vigorously opposed government regulation in the past. They have done so because a lot of that regulation was arbitrary and was not technically sound.

This is an exception. The bill before you, Mr. Chairman, proposes to save energy while allowing lighting professionals and the lighting industry to do their job. I would like to just hit the four high points and then ask that the statement be entered in the record along with the list of the member companies involved in this project.

First, the U.S. lighting industry supports energy savings. It is not to our advantage to waste energy. It is to our mutual advantage to support any measure which rationally and reasonably conserves our environment and our energy resources.

Two, the lighting industry, Mr. Pucillo's company as an example, produced energy efficient products long before there was a crisis in the 1970s and before there was any legislative action. It is good business to produce a product that costs less to operate.

Number three, the lighting industry has given customers exceptional value. I would ask that this subcommittee and others involved in this program look at the prices that people are paying for

lighting today. They are substantially less than they were 30 years ago.

I think this is a very important issue, particularly in light of the stand taken by the administration. Number four is that the lighting industry is relatively small in numbers of manufacturers. There are three or so major ballast manufacturers, three to five major lamp manufacturers, and a few dozen major fixture manufacturers.

Those people operate on economies of scale. They produce nationwide, and the concept of having 50 states each having their own labeling requirements, certification requirements, paperwork and testing requirements is just untenable. You cannot ship a national product and have it earmarked for each state.

Now, Mr. Chairman, we find out that the city of San Antonio, Texas proposes to introduce a city ordinance to duplicate what is in your bill today. That means that San Antonio will have a different labeling requirement. So it is conceivable that major cities would require each manufacturer to code their product for that city and to test that city's requirement. That, in effect, stops interstate commerce.

That is why we are here today. It is a reasonable, rational technical standard, and it really relieves the regulatory burden. In fact, we take strong issue with the administration. This is not a burdensome piece of legislation. This relieves a burden from industry, and we would strongly encourage that this committee support this piece of legislation.

Thank you.

[The prepared statement of Mr. Geissler follows:]

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STATEMENT

OF

RICHARD GEISSLER

DIVISION MANAGER
LIGHTING EQUIPMENT DIVISION

OF THE

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

AND

EXECUTIVE DIRECTOR OF THE
NATIONAL LIGHTING BUREAU

ON

S. 2167 THE 1988 AMENDMENTS TO THE
NATIONAL APPLIANCE ENERGY CONSERVATION ACT

BEFORE THE

SUBCOMMITTEE ON ENERGY REGULATION AND CONSERVATION

OF THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

U.S. SENATE

MARCH 29, 1988

Statement of

Mr. Richard Geissler
Division Manager
Lighting Equipment Division
National Electrical Manufacturers Association

and

Executive Director
of the National Lighting Bureau

On behalf of the

LIGHTING EQUIPMENT DIVISION
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

March 29, 1988

My name is Richard Geissler, and I am here today representing the 60 member companies of the Lighting Equipment Division of the National Electrical Manufacturers Association.[1] Our members manufacture and sell more than 85 percent of all lamps, ballasts, lighting fixtures and emergency lighting devices sold in the U.S. commercial/industrial market. The NEMA companies are the technological leaders in lighting, and have a solid history of promoting energy efficient, cost-effective lighting products.

These are the same companies which have vigorously opposed inappropriate, and technically unsubstantiated government regulations in the past. And, for good reason. Almost all previous attempts by government to intrude in the lighting market have been based upon arbitrary conservation criteria, such as attempt-

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[1] NEMA, founded in 1926, is the Nation's largest professional trade association for domestic manufacturers of electrical products for the generation, transmission, distribution and end-use of electric power. The Association's 600 member companies are divided into nine divisions of which is the Lighting Equipment Division.

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ing to mandate maximum watts-per-square foot limits. We believe lighting decisions are normally best left to lighting professionals and the customers they serve.

With that opposition to regulation in mind, it is very significant to find the lighting industry here today advocating passage of S. 2167, the National Appliance Energy Conservation Amendments of 1988. In fact, not only do we support this measure, it was a special Ad Hoc Task Force within the Lighting Division which developed the bill and formed a coalition with energy conservation and environmental advocates to promote its passage.

We have four basic reasons for taking this "unusual" initiative:

- The U.S. lighting industry solidly supports energy conservation. This is the same industry which has, over the years, introduced scores of products which produce more light, for less energy, and at lower initial costs. Managing energy wisely is in everyone's best interest, and is a long-term investment which benefits customers and producers.
- The U.S. lighting industry promoted energy efficient products long before the "energy crisis" of the early 1970s. Mr. Tony Pucillo, president of one of the country's largest ballast manufacturing firms, will explain in a few moments how his segment of the industry has worked to promote energy conservation through better products.
- The U.S. lighting industry has given customers excep-

tional value -- an issue which cannot be overlooked in any lighting equation. By continually improving manufacturing skills and upgrading product designs, U.S. manufacturers have been able to provide systems which give more light at reduced energy levels at a price substantially less than they did 30 years ago.

Fluorescent lighting is an excellent example of how industry has promoted increased efficiency at reduced costs. Fluorescent lamps produce four times the light output per watt[2] compared to incandescent lighting it replaced in the commercial/industrial market. Since fluorescent lighting was introduced in 1938 there have been improvements in ballast, lamp and fixture technologies. The art of lighting design, the arrangement of fixtures and the specification of lighting levels, have become more sophisticated.

Throughout this period of development, lighting companies have encouraged end-users to invest in quality lighting products and design. To invest in energy savings. To save operating costs by using more efficient products.

Within the past few years, various states have taken the initiative to "encourage" more energy conservation by mandating the use of energy efficient ballasts for most commercial/industrial applications. It is important to note that <u>the technology was already in the marketplace</u>; more energy efficient ballasts have been available since the late 1970s. The problem was, and is, market penetration. Despite their obvious cost effective-

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[2] The average incandescent lamp (bulb) produces 27 lumens per watt, compared to 100 lumens per watt for the average fluorescent lamp (tube). A lumen is a measure of light output.

ness, energy saving ballasts are not universally used. What state governments have done, and continue to do, is to intervene by legislating wider application.

California, New York, Connecticut, Florida and Massachusetts established minimum fluorescent ballast energy efficiencies for those units most commonly found in offices, retail outlets, institutions and factories. Other states, such as Maine and Wisconsin are now considering similar measures.

The targets of this legislative action are the types of ballasts used to operate the standard four-foot and eight-foot twin-tube fluorescent systems which you see in almost every public building in this country. Each of the above states has its own unique certification procedure. Some states are considering labeling requirements. Paperwork is proliferating. In short, while state standards adopted to date are technically similar, each is sufficiently different in its application to cause problems. Procedures, testing for compliance, certification, and labeling, vary.

Industry is increasingly faced with a tangle of bureaucratic demands. And now even a municipal government is working on its own conservation standard, which it hopes to soon adopt as a city ordinance.

That brings me to the fourth major issue:

- The U.S. lighting industry is <u>national in scope</u>. It produces in volume for nation-wide distribution. It does not, and cannot, design, mass produce, package, register, and label products for 50 different state markets -- let alone the potential of 20 or 30 munici-

pal markets.

What the states, and at least one city government, are doing is fragmenting the market, creating untenable barriers to interstate commerce. They are acting, because there is no federal policy. During last week's hearing on the companion bill, H.R. 4158, the Honorable Sharon Pollard, Secretary of Energy Resources for the Commonwealth of Massachusetts testified in behalf of this measure. She was also a spokeswoman for the National Association of State Energy Officials (NASEO) to strongly endorse a uniform national standard. She, along with her colleagues from other states realize that a single policy is superior to what now exists.

Removing unnecessary impediments, such as the growing number of different state requirements is imperative. Why? Because domestic lighting manufacturers have given end-users increased value at reduced cost by employing economies of scale and sophisticated production methods. Increasing the bureaucratic burden on industry, adds costs which must ultimately be borne by the customer.

A single uniform Federal standard is needed. The lighting manufacturers, working through NEMA, and in cooperation with the Certified Ballast Manufacturers (CBM) and the energy conservation and environmental advocates, took the lead in developing the legislation which you have before you. We have not found one manufacturer who opposes this bill. And, we have found strong support among House and Senate members.

The technical requirements are sound, the procedure fair, and the interests of the country and customers are protected. We

believe S. 2167 is a "win-win" proposal. It is legislation which benefits end-users, saves energy and is not burdensome to industry.

The bill before you is significantly different from other legislative proposals. It offers all of us an opportunity to save energy without legislating lighting design, or arbitrarily establishing lighting levels.

If any governmental regulation can be considered to benefit all parties involved, then S. 2167 should be so considered. In an exceptionally reasonable manner, it allows lighting manufacturers and lighting designers to continue serving the customer while saving energy.

I will be delighted to answer any questions.

Thank you.

APPENDIX A

Abolite Lighting Incorporated
A Subsidiary of Jones Metal Products
West LaFayette, Ohio

Advance Transformer Company
A Division of North American Philips Corporation
Chicago, Illinois

Advanced Lighting International
Cleveland, Ohio

American Electric
FL Industries
Southaven, Mississippi
and
Pittsburgh, Pennsylvania

The Bodine Company Incorporated
Collierville, Tennessee

Chloride Systems
Chloride PWR Electronics Incorporated
North Haven, Connecticut

Cooper Lighting Group
Elk Grove Village, Illinois
Including the folloing companies
Crouse-Hinds Lighting
Halo Lighting
Lumark
Metalux
SPI Lighting

Day-Brite Lighting
An Emerson Electric Company
Tupelo, Mississippi

Dual-Lite Incorporated
Newtown, Connecticut

Duro-Test
North Bergen, New Jersey

Electronic Ballast Technology
Torrance, California

Elan Industries
San Jose, California

Emergency Lighting and Systems Incorporated
Russellville, Arizona

Exide Electronics
Raleigh, North Carolina

General Electric Company
Lamp Division
Nela Park - Cleveland, Ohio
Fixture Division
Hendersonville, North Carolina

The Genlyte Group
Secaucus, New Jersey
Including the following companies
Basic Concepts
Crescent Lighting
Diamond F / Timely
E-Lite
HadCo
Keene Lighting Products
Lightolier
StoneCo
Wide-Lite

GTE Products Corporation
Sylvania Lamp Division
Danvers, Massachusetts
Lighting Equipment Division
Fall River, Massachusetts

Guth Lighting
Division of Jac Jacobsen Industries
St. Louis, Missouri

Hanson Industries
San Leandro, California
Including the following companies
Architectural Area Lighting
Columbia Lighting
Devine Lighting
Keystone Lighting
Kim Lighting
Marvin Electric Manufacturing Company
Moldcast
Prescolite
Progress Lighting
Spaulding / Whiteway

Holophane Lighting Division
Manville Products Corporation
Newark, Ohio

Hubbell Lighting Division
Hubbell Incorporated
Christianburg, Virginia

The Kirlin Company
Detroit, Michigan

Lithalarms Electronics Corporation
Baldwin, New York

Lithonia Lighting
Conyers, Georgia
Including the following Companies
Acme-Dunbar
Lithonia Emergency Systmes
Lithonia Lighting
Hi-Tek Lighting

MagneTek Universal Manufacturing Company
A Division of MagneTek Corporation
Paramus, New Jersey

McPhilben Lighting Company
An Emerson Elecrtric Company
Melville, New York

OSRAM Corporation
Newburgh, New York

Paramount Industries Incorporated
Croswell Division
Croswell, Michigan

Philips Lighting Company
A Division of North American Philips Corporation
Somerset, New Jersey

Radiant Illumination Incorporated
North Hollywood, California

Red Dot Division
L.E. Mason Company
Boston, Massachusetts

Regent Lighting Corporation
Burlington, North Carolina

Siemens Lighting AG
Islip, New Jersey

Silvine Incorporated
Abington, Pennsylvania

Triad-Utrad
Division of MagneTek Corporation
Huntington, Indiana

Senator WIRTH. That is very convincing testimony, Mr. Geissler. Thank you very much. I am in great agreement.

I wish that you would come and testify on clean air as well. Can you imagine what would happen in the country if we left clean air standards to 50 states?

The assumption that somehow clean air gets to a state border and stops and changes its makeup to meet the standards is really quite preposterous.

Mr. GEISSLER. Your point is well taken, Mr. Chairman.

Senator WIRTH. Thank you, Mr. Geissler.

Mr. Geller.

STATEMENT OF HOWARD S. GELLER, ASSOCIATE DIRECTOR, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY

Mr. GELLER. Thank you, Mr. Chairman. I am speaking on behalf of the American Council for An Energy-Efficient Economy, which is a nonprofit group which gathers, evaluates and disseminates information to stimulate greater energy efficiency.

It is a great pleasure to come together with the industry representatives in support of the National Appliance Energy Conservation Amendments of 1988. The efficiency standards for fluorescent lamp ballasts will benefit consumers, manufacturers, utilities, and our nation as a whole. Specifically, these standards will save consumers up to $10 billion, eliminate the need for numerous expensive, risky and polluting power plants, and provide both utilities and ballast manufacturers with a more certain market environment.

In addition, the standards will complement the efficiency standards adopted by states, not totally preempt states' rights.

Lighting accounts for 20 to 25 percent of the electricity consumed in the U.S. About half of this is in the form of fluorescent lighting. If all fluorescent lights used the most efficient ballasts now on the market, total electricity use in the U.S. would drop by about 3 percent.

Let me just summarize some of the economic energy savings that I have estimated based on a detailed analysis of this legislation and conclude my remarks.

I estimate that these particular standards will cut peak electrical demand by over 7,000 megawatts in the year 2000 and over 9,000 megawatts in the year 2010. This magnitude of peakload production is sufficient to displace about 20 large coal-fired power plants.

With these types of power plants, costing around $15 per kilowatt, utilities could avoid investing nearly $8 billion in new power plants by the year 2000 and over $20 billion by the year 2010.

The total reduction in electricity consumption between 1990 and 2010 is estimated to equal over $500 billion kilowatt hours. Since utilities burn considerable oil and natural gas on the margin, much of the ultimate savings will be in the form of oil and gas, thereby reducing energy imports and enhancing national security.

The indirect oil and gas savings during 1990 to 2010 are estimated to equal over 560 million barrels of oil equivalent. Thus, the ballast standards can be viewed as a very large oil field.

In terms of economic impacts, it is interesting to note that a standard ballast might cost about $10. During the life of that ballast, it will draw about $350 worth of electricity. About $70 of this is dissipated as heat, and the rest is passed on to the fluorescent lamps.

The more efficient ballasts will cost about $4 more initially but consume $40 less electricity over the same life.

At the national level, consumers are expected to save about $11 billion by the year 2000 and nearly $16 billion by 2010. The benefits to consumers are about four to five times the extra first cost. The main beneficiaries, of course, will be owners and occupants of office buildings, retail stores, schools, hospitals and other types of commercial buildings, including the Federal Government.

In addition, the cost premium for the efficient ballast that you see now in the marketplace, the extra $3 or $4, should actually reduce after the standards go into effect due to economies of scale and competition, which would make the regulations even more cost effective.

To conclude, energy conservation is still an important national goal, and it must not be taken for granted. With energy prices temporarily depressed, it becomes all the more important for the government to demonstrate leadership and adopt substantive and effective policies in support of conservation.

As a representative of energy conservation analysts and advocates, I urge Congress and the President to promptly adopt S. 2167, the National Appliance Energy Conservation Amendments, as proposed.

Thank you for the opportunity to present these views.

[The prepared statement of Mr. Geller follows:]

TESTIMONY OF:

HOWARD S. GELLER, ASSOCIATE DIRECTOR
AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY
WASHINGTON, DC

PRESENTED TO:

SUBCOMMITTEE ON ENERGY REGULATION AND CONSERVATION
COMMITTEE ON ENERGY AND NATURAL RESOURCES

U.S. SENATE

HEARING ON:

THE NATIONAL APPLIANCE ENERGY CONSERVATION AMENDMENTS OF 1988

MARCH 29, 1988

I. Introduction

The American Council for an Energy-Efficient Economy (ACEEE) is a non-profit organization which gathers, evaluates and disseminates information to stimulate greater energy efficiency. ACEEE has worked extensively on the analysis and promotion of more efficient appliances and lighting products, including the NAECA appliance efficiency standards passed by Congress and adopted as law in 1987.

It is a great pleasure to come together with industry representatives in support of the National Appliance Energy Conservation Amendments of 1988. The efficiency standards for fluorescent lamp ballasts contained in this legislation will benefit consumers, manufacturers, utilities, and our nation as a whole. Specifically, these efficiency standards will:

- o save consumers up to $10 billion
- o eliminate the need for numerous expensive, risky, and polluting power plants,
- o provide both utilities and ballast manufacturers with a more certain market environment,
- o be achieved without undue burden to manufacturers.

Lighting accounts for 20-25% of the electricity consumed in the U.S. and about half this is in the form of fluorescent lighting. If all fluorescent lights used the most efficient ballasts now commercially available, total electricity use in the U.S. would drop by about 3%.

Preventing the sale of inefficient lighting ballasts through national standards is necessary for a number of reasons. First, there is significant variation in the efficiency of ballasts available in the marketplace today. Lighting fixtures using the most

efficient ballasts consume 25-30% less electricity than fixtures containing standard ballasts. Second, the building owners, managers, and contractors who purchase ballasts generally choose products with the lowest first cost, paying relatively little attention to efficiency and rarely selecting units that minimize "life-cycle cost" (i.e., the combination of initial cost and operating cost). Third, a large fraction of ballasts are purchased by parties who do not pay the operating costs in commercial buildings (i.e., non-occupants). These individuals have no incentive to buy slightly more expensive yet more energy-efficient ballasts. Fourth, uniform national standards will prevent a patchwork of state regulations, a very important consideration for manufacturers. In addition, passing national efficiency standards on lamp ballasts sets the stage for similar standards on lamps themselves.

II. Energy and Economic Savings Potential

I have completed a detailed analysis of the energy and economic savings that can be expected from the standards in the proposed legislation. The methodology and results of the analysis are summarized in the remainder of my testimony.

Methodology

My analysis considers the energy use, first cost, and operating cost of ballasts sold between 1987 and 2010. National sales are projected year-by-year along with the anticipated energy use of typical ballasts produced under a "marketplace scenario" (i.e., without national standards) and a "standards scenario". This yields estimates of the aggregate savings as a consequence of adopting the

standards. The impacts of state ballast standards are included in the "standards case".

Dollar savings are determined over the lifetime of ballasts sold during 1987-2010. The economic analysis is done in terms of constant 1986 dollars using a 5% real discount rate for discounting equipment and energy costs in the future. The extra first cost for more energy-efficient ballasts is based on prices in the marketplace today. Also, it is assumed that the average commercial electricity price in 1986 -- $0.071/kWh -- remains level in constant dollars (i.e., electricity prices do not rise faster or slower than inflation).

Results

It is estimated that the standards would reduce the power and electricity consumption of new ballasts by 9-10% during 1990-2010. Electricity savings should reach 27,600 GWh/yr by 2000 and 36,600 GWh/yr by 2010. These values are equivalent to 4.3-5.7% of electricity consumption in commercial buildings as of 1986.

The estimated peak load reductions are 7,100 MW by 2000 and 9,400 MW by 2010. The peak load reduction expected by 2000 is sufficient to displace about 20 large coal-fired power plants. Assuming that utilities can avoid constructing baseload plants at a typical cost of $1500/kW, utilities can save nearly $8 billion by 2000 and $10.4 bilion by 2010 (undiscounted 1986 dollars). In addition, there could be futher savings from avoided investments in transmission and distribution facilities.

The cumulative reduction in electricity consumption during 1990-2010 is estimated to equal over 500 billion kWh. Since

utilities burn considerable oil and natural gas on the margin, much of ultimate savings will be in the form of oil and natural gas, thereby reducing energy imports and enhancing national security. The indirect oil and gas savings during 1990-2010 are estimated to equal 560 million barrels of oil equivalent. Thus, the ballast standards can be viewed as a very large "oil field".

Regarding economic impacts, less efficient ballasts cost about $10, but draw about $350 worth of electricity during their 10-15 year life (about $70 of this is dissipated as heat, the rest is passed on to the lamps). The more efficient ballasts required by this legislation cost about $4 more initially, but consume about $40 less electricity over the same life. Top-rated electronic ballasts have a price premium of $15-25, but consume about $100 less electricity than standard ballasts.

At the national level, consumers are expected to realize a cumulative net savings of about $10.7 billion by 2000 and $15.6 billion by 2010. In terms of net present value, benefits to consumers are about four to five times greater than costs. The main beneficiaries will be owners and occupants of office buildings, retail stores, schools, hospitals, and other types of commercial buildings. Furthermore, the cost premium for efficient ballasts may drop after the standards go into effect due to economies of scale and competition. If so, the regulations would be even more cost effective.

III. Conclusion

Even though there are uncertainties regarding the exact magnitude of the benefits from the ballast standards, it is clear that the benefits will be large -- billions of dollars of savings for consumers and thousands of MWs in avoided power plants. Mandatory national standards are needed to guarantee that our nation benefits from more energy-efficient lighting products.

Energy conservation is still an important national goal and it must not be taken for granted. With energy prices temporarily depressed, it becomes all the more important for the government to demonstrate leadership and adopt substantive and effective policies in support of conservation. As a representative of energy conservation analysts and advocates, I urge Congress and the President to promptly adopt the National Appliance Energy Conservation Amendments as proposed.

Thank you for the opportunity to present these views.

Senator WIRTH. Mr. Geller, thank you very much.
Mr. Miller.

STATEMENT OF PETER M. MILLER, ENERGY POLICY CONSULTANT, NATURAL RESOURCES DEFENSE COUNCIL

Mr. MILLER. Thank you, Mr. Chairman. My name is Peter M. Miller. I represent the Natural Resources Defense Council, a national environmental organization with over 77,000 members and contributors.

The previous witnesses have described how this is a consumer bill with billions of dollars in savings, while others have pointed out that it is an industry bill providing regulatory certainty and uniformity.

I would like to point out that it is actually an environmental bill. The millions of energy efficient ballasts, and I have brought one here as an example today, that will be installed if this bill is passed will be, in effect, a conservation power plant that has different environmental characteristics from a conventional power plant.

This conservation power plant does not emit sulfur and nitrogen oxides, the precursors of acid rain. This conservation power plant does not emit carbon dioxide, the primary component of the global greenhouse effect. This power plant does not require the exploitation of sensitive lands.

In summary, this bill not only saves consumers money but is also one of the cheapest and most effective conservation and environmental protection measures that we have available today. I would like the Chairman to know that the environmental community is strongly behind him for that reason.

As far as I can see, there is only one problem with the bill; that is, it does not get the attention it deserves, first, because there is no controversy. Nearly everybody is behind it.

Second, the problem is amplified because we are talking about a little black box with wires sticking out that is not very sexy.

In general, there is a tendency to see this as a small technical issue. This perception could not be more mistaken. This is not a small technical issue. This conservation power plant will provide more electricity than the combined output of WPPS 1 and 3, Diablo Canyon, and Shoreham nuclear power plants. It will do so cleanly, reliably, economically and without controversy.

Conservation is the energy success story of the century, and through NAPA, the National Appliance Energy Conservation Act of 1987, and the legislation being considered today, Congress is helping to bring that success story to life.

I think Congress deserves recognition and credit for the work in this area, and I applaud you for your efforts.

Thank you again for the opportunity to testify, and thank you as American citizens for the benefits that this legislation will bring to all of us.

[The prepared statement of Mr. Miller follows:]

TESTIMONY OF THE NATURAL RESOURCES DEFENSE COUNCIL BEFORE THE UNITED STATES SENATE, COMMITTEE ON ENERGY AND NATURAL RESOURCES, SUBCOMMITTEE ON ENERGY REGULATION AND CONSERVATION

IN SUPPORT OF S. 2167, "THE NATIONAL APPLIANCE ENERGY CONSERVATION AMENDMENTS OF 1988"

March 29, 1988

David B. Goldstein, Ph.D.
Peter M. Miller
Robert K. Watson

I. INTRODUCTION

Last session, the Natural Resources Defense Council (NRDC) appeared before this Committee in support of unique legislation that brought together organizations and associations that had long been adversaries over energy standards. Backed by this broad coalition, Congress passed by a overwhelming margin the National Appliance Energy Conservation Act of 1987 (NAECA), which it is estimated will save some 22,000 megawatts of electrical power by the end of the century. Today, a similar coalition spanning environmental and consumer interests, utilities, and equipment manufacturers has joined to ask your support for S. 2167, THe National Appliance Energy Amendments of 1988, which would extend NAECA to include fluorescent lamp ballasts.

Fluorescent lamp ballasts are essentially electrical transformers which provide the correct voltage and current to the lamps in every fluorescent lighting fixture. Ballasts are not ordinarily thought of as an important energy-using appliance. However, energy used for commercial lighting -- primarily from fluorescent fixtures -- accounts for some 100,000 megawatts of peak electrical demand, or roughly 25% of the total U.S. electrical demand.[1,2] And changing the design of the ballast can significantly improve the energy efficiency of the lighting fixture.

The more efficient ballasts required by this Bill will reduce lighting energy consumption by about 9%. This will result in a savings of some 7,000 megawatts of electrical peak power by the year 2000, according to calculations by Howard Geller of the American Council for an Energy Efficient Economy (ACEEE). This is the equivalent output of seven large nuclear or coal-fired power plants. By adding this single additional appliance to the list of covered products, the consensus standards in S. 2167 can increase the power savings from national appliance efficiency standards by almost a third.

The more efficient ballasts cost slightly more, but the additional costs are paid back to the consumer typically in less than two years. Net savings to consumers adds up to an estimated $10 billion by the year 2000.

As a national environmental organization with over 77,000 members and contributors, NRDC strongly urges your support of this legislation. NRDC's Energy Program has worked for over a decade to foster policies such as the ones embodied in this legislation and in NAECA, where environmental protection is

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1 N. Lihach and S. Pertusiello. "Evolution in Lighting". EPRI Journal, June 1984, pp. 14-15.

2 D. Goldstein. "Preventing Wasted Light". The Construction Specifier, October 1984, pp. 38-46.

complementary to economic growth. We believe that these amendments provide economic benefits to a wide range of parties, while also helping the nation to make major strides in improving environmental quality and enhancing energy security.

This testimony summarizes the content of S. 2167 in Section II, and outlines its economic and environmental benefits in Section III. Section IV describes the development of consensus for support of the legislation. Section V discusses the merits of expanding the Bill's coverage to include plumbing fittings.

II. PROVISIONS OF THE BILL

Efficiency standards for ballasts were first established by the State of California in 1982, effective one year later. New York adopted virtually the same standard in 1985, followed by Massachusetts, Florida, and Connecticut.

S. 2167 would establish an initial standard level for the ballasts types most commonly used in commercial applications at the same level as has been adopted to date by the five states. This initial standard would be effective in 1990. Numerous analyses by the appropriate state energy agencies have confirmed the feasibility and cost-effectiveness of this level of efficiency. The Department of Energy (DOE) is further required to consider revising the standards to a higher level of efficiency effective in 1995.

As is the case with the other appliance standards contained in NAECA, the proposed ballast standard would preempt state standards while providing states with the option of petitioning for exemption from preemption under specified criteria. Any future DOE standard would also preempt state standards, averting the risk of conflicting higher levels of state standards.

At present, fluorescent ballasts intended for residential applications such as home shop lights are not covered by this legislation. Following the example of the standards contained in NAECA, states are able to set standards for this product class until DOE decides on a national standard. DOE is allowed but not required to set these standards in the future. It is anticipated that future negotiations between industry and public interest and state representatives may provide a consensus level of efficiency that DOE can adopt without substantial opposition or controversy in the future.

III. BENEFITS OF THE LEGISLATION

One reason for the wide diversity of interests supporting this legislation is that all of the various constituencies benefit from the standards.

The most direct beneficiary is the user of the ballast. Research performed by NRDC under contract to the Massachusetts Executive Office of Energy Resources in 1986 found that an energy-efficient ballast of the type that would be required by the proposed legislation would cost an additional $3.50 (compared to a standard ballast), while producing energy savings worth $2.00/year throughout its ten-to-twenty year lifetime.[3,4] Thus, the investment in increased efficiency would be paid back in less than two years; total savings over the lifetime of the ballast are $16.50 - $36.50. Stated differently, the cost of conserving energy with a more efficient ballast is approximately 15 mills/kWh.[5] This is less than the operating cost of most current power plants, and approximately one fourth the cost of a new electrical power plant.

These savings provide a major benefit to businesses, the primary user of fluorescent lighting. Mr. Geller has estimated that net savings over the first ten years of effectiveness of the standards will exceed $10 billion. By 2010, savings exceed $15 billion. Large additional savings may be achieved if DOE upgrades the level of efficiency required to that of a solid state ballast in its 1995 rulemaking. Solid state ballasts save an additional 20% above and beyond the 9% savings realized by the more efficient core-coil ballasts required by the legislation. The present value of benefits from this additional step exceeds the costs by a ratio of two-to-one, even under conservative assumptions.[6] Thus, DOE has the option under this legislation of promulgating additional standards that could more than double both energy and cost savings.

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3 Costs and savings are taken from D. Goldstein, A. Miller, R. Watson, P. Miller, A Comprehensive Assessment of Proposed Appliance Efficiency Standards for the Commonwealth of Massachusetts, prepared for the Massachusetts Executive Office of Energy Resources by the Natural Resources Defense Council, San Francisco, 1986, pp. 1-57 through 1-61.

4 Savings are computed using national average energy prices of $0.074/kWh to the commercial sector, as taken from Monthly Energy Review, June 1987, U.S. Department of Energy, DOE/EIA-0035. A conservative 3,000 hour/year usage cycle is assumed in accordance with reference 3, although considerable evidence supports a longer usage cycle.

5 Calculation assumes a ten-year lifetime and a 3% real discount rate, as used in the Northwest Power Planning Council's 1986 Northwest Conservation and Electric Power Plan. A mill is 1/10 of a cent, thus savings cost 1.5 cents per kWh of conserved energy.

6 See reference 3.

Other elements of the economy also profit from these efficiency improvements. More jobs are created, because supplying and distributing more efficient ballasts is more labor intensive than supplying new electricity. And economic growth is enhanced because money is being directed to providing identical energy services at lower cost.

Electric rates will be held down for all sectors because the peak power savings will allow utilities to defer or cancel new power plants that would otherwise require rate increases to finance. This is why consumer organizations support ballast standards, even though the direct savings are to the business sector.

Utilities benefit from this legislation in several ways. Perhaps most significant is the reduction of forecasting uncertainty, with its attendant risk of overbuilding or underbuilding supply. Without these standards in place, it is virtually impossible for a utility to forecast with confidence what market share efficient ballasts will take in the future. If the utility guesses wrong, in either direction, it risks committing too much or too little in the way of resources. Failure to predict efficiency increases that have occurred over the past decade has already cost the utility industry over $20 billion in wasted investment.

Utilities and their ratepayers also benefit directly from the 7,000 megawatt reduction in peak demand expected from these standards. Since virtually all fluorescent lamps are turned on during the utility peak period (and for summer peaking utilities, are creating additional air conditioning demand as well), reductions in peak power will save costs by improving utility load factors as well as reducing the need for new power plant construction. These savings will benefit all ratepayers.

The standards also directly benefit equipment manufacturers. First, the efficiency standards provided in this legislation reduce the regulatory burden on industry by substituting a uniform national standard, revised on a predictable time schedule, for a multiplicity of state legislation and regulatory proceedings occurring at random times. Second, manufacturers wind up selling a higher priced product and potentially increasing their profits while also providing greater value to their customers.

The legislation will benefit smaller businesses and lower income households. Low income people realize greater benefits from the restraining effect these standards will have on utility rates, because electricity costs represent a larger share of household expenditures for the low income than for the average family.

The benefits of the standards are likely to be felt preferentially by small business, because many of the larger commercial interests are aware of the good payback of more efficient ballasts, and are buying them already. This legislation will extend the savings across the board. Also, by increasing the production of the more efficient ballasts, it should reduce cost differentials through economies of scale.

Environmental benefits are an additional reason that this legislation makes sense. Reductions in electricity consumption from more efficient ballasts lead directly to reductions in pollution emissions from electric power plants. This reduces the adverse health effects of air pollution, and also reduces acid rain. Even larger emissions reductions are made possible by the savings from avoiding new power plant construction. These savings can be used to finance improved pollution controls, allowing acid rain reduction targets to be met at negative net cost to the consumer.[7]

Efficiency improvements to reduce energy consumption are the only effective way of reducing America's contribution to the problem of global climate change. Carbon dioxide emissions from burning fossil fuels are implicated as the primary component of the "greenhouse effect" in which massive climate changes that can adversely effect agriculture and other key economic activities that are predicted to occur by the 21st century. This legislation provides a means of mitigating global warming that not only can be accomplished at no cost to the economy, but actually provides net savings.

It is not often that Congress is asked to act on legislation that benefits all parties without disadvantaging anybody, and is supported by a diversity of interests from industry to environmentalists to consumer advocates. We hope this broad consensus support will allow prompt passage of S. 2167.

IV. A CONSENSUS APPROACH TO IMPROVING EFFICIENCY

This bill proceeds from negotiations between NRDC, ACEEE, the Alliance to Save Energy, and the National Electrical Manufacturers Association (NEMA), which were facilitated by the hard work and attention of House and Senate staff members Richard Counihan and Allen Stayman. The discussions were inspired by the successful negotiations between NRDC and the three major home appliance trade associations that led to the National Appliance Energy Conservation Act of 1987.

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7 H.S. Geller, et al., Acid Rain and Electricity Conservation, American Council for an Energy Efficient Economy, 1987.

Following the passage of NAECA, both conservationists and manufacturers began to see the benefits of following its example and agreeing on a feasible level of efficiency that could be used as a national standard to avoid the wastefulness and possibly conflicting effort of establishing standards on the state level. Discussions between Congressional staff and the affected parties were held throughout 1987 and into the early part of this year, culminating in a growing coalition supporting the consensus language developed by staff for S. 2167.

V. AMENDMENTS TO THIS LEGISLATION

This bill follows on the heels of several states that have adopted the California regulations for fluorescent lamp ballasts. All of these states -- Massachusetts, Connecticut, Florida, New York and California -- also have established standards for plumbing fittings such as showerheads, which are responsible for high levels of energy use in the form of heated water. NRDC recommends that the Committee amend S. 2167 to include plumbing fittings as a regulated product and to adopt an initial standard at the level of efficiency contained in California's current standard.

Increasing the efficiency of showerheads is virtually the most cost-effective efficiency improvement available in America today. Using the most conservative assumptions for savings and the cheapest source of hot water -- a gas water heater -- the $10 cost to comply with the California standards throughout a house is paid back in energy savings in less than a year. Alternatively, if electricity is the fuel source, then payback occurs in less than four months.[8] In addition, the value of the water savings may be as significant as the energy savings in some communities.

The additional energy savings that could be obtained from adopting a national standard for this product at the California level of efficiency is large. Using conservative assumptions, energy savings nationwide would be approximately 2,400 megawatts of average electric power (running 24 hours a day), equivalent to the output of three large power plants, plus 40,000 barrels per day of oil equivalent savings from oil and gas-fired water heaters. The water savings would be approximately 1.5 million acre-feet per year.

These savings can be accomplished at low cost and with minimal disruption to industry, since a number of states are already enforcing this level of energy efficiency. The trade association representing showerhead manufacturers has recently written the Chairman of the House Subcommittee on Energy and

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8 See reference 3, pp. 1-55 through 1-57.

Power stating that some 95% of showerheads already meet California-type efficiency standards.[9] This is the first such estimate of compliance NRDC has seen. If true, it would imply that there would be virtually no adverse impacts from regulating showerheads in this bill.

Notwithstanding, there would still be major benefits from including plumbing fittings in the legislation. Because there is no reliable data source for the market share of efficient showerheads, utilities have no basis for predicting future demand as new showerheads of unknown efficiency replace existing inefficient products. National regulations on plumbing fitting efficiency will allow utilities -- both energy and water utilities -- prudently to forecast reductions in water use and to plan future resource additions accordingly. Of course, if the 95% compliance estimate is wrong, as we are concerned it is, a plumbing fitting standard will ensure that consumers receive the savings discussed earlier.

In conclusion, we urge the Committee to amend S. 2167 to include plumbing fittings as a covered product and to set an initial standard at the same level as California's current standard.

VI. SUMMARY AND CONCLUSIONS

This legislation is a logical follow-up to NAECA, which passed the Senate last session by a vast margin. As with NAECA, this Bill is supported by a coalition of environmental organizations, consumer groups, utilities and their regulators, and manufacturers of the affected product which has come together to support a mutually beneficial public policy. We urge the Committee to support this legislation and to work for its expedited passage through the Congress.

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9 Letter from Richard W. Church, Plumbing Manufacturers Institute, to Chairman Philip Sharp, March 16, 1988.

Senator WIRTH. Thank you very much, Mr. Miller.

Let us go to the point of what this was the equivalent of. Do that again. This is the equivalent of what, how many Seabrooks?

Mr. MILLER. This will produce by the year 2000 approximately 7,000 megawatts of power, which is well over the output of seven nuclear power plants.

Senator WIRTH. How much would it cost to build seven nuclear power plants?

Mr. MILLER. That is a good estimate. If the utilities get a better handle on that, they might save themselves some money over the past decade, $30 billion.

Senator WIRTH. So this piece of legislation, therefore, is worth about $30 billion to the taxpayer, is that right?

Mr. MILLER. Plus the reduced energy cost of that electricity, so maybe $40 billion might be a closer estimate. Plus, that does not include the environmental benefits, which are not quantified.

Senator WIRTH. What are other examples of things like this, Mr. Miller, that we ought to be doing, in your opinion?

Mr. MILLER. There are a number of benefits.

Senator WIRTH. Any of you others may jump right in.

Mr. MILLER. One of the things that we could be doing is investing more in conservation research and development. That is a government program that has suffered from a lack of funding over the past six to eight years and could well benefit from increased funding.

In particular, the problem of CSCs has arisen in the refrigeration systems, and a possible technology that might help solve that problem is evacuated panels. It is basically two pieces of steel where the air has been taken out of it. It is excellent insulation.

That program right now is at SERI, Solar and Energy Research Institute, and is languishing for lack of money. That could help solve this CSC problem and save energy by creating a refrigerator that is very low energy and does not need to use those undepleting CSCs and also saves consumers a significant amount of energy.

Senator WIRTH. That is refrigeration? We hit appliances and overrode the President's veto on that.

We are now looking at lighting. There are other technologies in the lighting area, is that right? Are there a variety of others as well?

Mr. GEISSLER. Mr. Chairman, it is probably not good politics to come to the Senate and criticize the Senate Office Building, but above you you have——

Senator WIRTH. It is one of the most appalling structures in the history of western man, so everybody will cheer, I think.

Mr. GEISSLER. You have above you incandescent lamps, mogul-base base lamps. About 92 percent of their energy is dissipated in heat and 6–7 percent or so in actual light output. If the Senate was sincerely interested in lighting savings, you could replace the 24 fixtures above you with half the number and get twice the amount of light and use far less electricity.

It is that type of investment that the lighting industry has been pushing for. There is no reason for those fixtures to be there and operate as they are when there are very inexpensive, very effective fixtures on the marketplace to replace them.

Senator WIRTH. How difficult would it be to get the superintendent to come in and do that, Mr. Geissler?

Mr. GEISSLER. We will be more than happy to forward to you the names of some lighting designers that will be able to give——

Senator WIRTH. I am just thinking. Mr. Harwood is going to talk to you afterwards so that we can get that to the superintendent and do that.

Mr. GEISSLER. Thank you. Why not? It is an immediate savings. You are using about 7,000——

Senator WIRTH. The technology is available right now?

Mr. GEISSLER. It is there.

Senator WIRTH. It is possible to go out and buy that technology for the Senate Office Building tomorrow?

Mr. GEISSLER. Yes, absolutely.

Senator WIRTH. This afternoon?

Mr. GEISSLER. This afternoon.

Senator WIRTH. As soon as this hearing is over?

Mr. GEISSLER. Yes.

You are using 7,200 watts, not counting heat displacement above you, and that could be cut at least by two-thirds.

Senator WIRTH. Okay.

What are other things that we ought to be doing? We have talked about refrigeration. We have talked about the other kinds of lighting. What else should we do?

Mr. GEISSLER. I would defer to our experts on the left.

Mr. GELLER. I would like to suggest automobiles as an area that is sorely needing attention. It is the largest single end use for oil in this country. I think about 40 percent of the ultimate oil use is in light vehicles, cars and light trucks. New car fuel economies have leveled off. Light trucks have actually gone down a bit in recent years in terms of fuel m.p.g.

The only improvements that we are seeing today are because of the increasing fraction of new sales going to imports from the Far East. Some kind of policy really needs to be adopted, whether it be tougher gas guzzler taxes and rebates or highly efficient cars——

Senator WIRTH. Okay, let me ask you, Mr. Geller. Donna Fitzpatrick, the Assistant Secretary for Conservation and Renewable Energy, in testimony presented to this committee on this legislation, says on this very question of fuel economy standards after they go through the usual mantra from the administration about regulation, then she goes on to say:

> An example of such ill-advised regulation is the Federal Corporate Average Fuel Economy Program. Now that market forces have pushed the average fuel economy of the new car fleet beyond the level set by the standards, the economic distortions caused by the CAFE standards are becoming more evident.

She goes on to say,

> The CAFE standard is having little or no effect on the efficiency of the on-the-road fleet, but it can hurt the domestic auto industry.

So what she is claiming is that we ought to continue the decline started by Mrs. Dole to further destroy the efficiencies that had been built into the U.S. auto fleet.

What is your answer to that?

Mr. GELLER. I would suggest it is just blind ideology. I can pass on to you and to Ms. Fitzpatrick a very nice article in Automotive

News, the industry's own publication, where the writer for the automobile industry has stated very clearly that the CAFE standards gave the industry a kick when they first were adopted and pushed them to higher——

Senator WIRTH. When we first adopted them, I was in the House at the time, and the average automobile was getting a little more than 12 miles per gallon. If it had not been for the fuel economy standards, the American automobile industry probably would have cratered completely.

Now we have it up to 27, and we are doing a little better than 27. As you remember, Mrs. Dole repealed the standards. So we are slipping back to about 25.

Let me tell you. You will see over there on the wall a map. That map is of ANWR, the Alaskan National Wildlife Refuge. The administration has come up here and said what we ought to do is to drill in that refuge and that we might find in that refuge, as I remember, about 3.3 billion barrels of oil; however, this is, of course, with all the problems that come with doing that.

If we, on the other hand, just kept the fuel economy standards that are in the legislation now, we would save more than the oil we might possibly get out of there.

So effectively what the administration is coming up and doing is saying to us what we ought to do is to drill ANWR so we can feed gas-guzzling automobiles because we got rid of the CAFE standards. We will get rid of one of the last great wildlife refuges so that our inefficient automobiles can consume more oil.

It seems that defies logic. It just makes no sense at all. If we have an international crisis and we have to drill ANWR, we might have to do it, but certainly allowing the fuel economy standards to erode is not an international crisis. It is, I think, as you suggested, Mr. Geller, blind ideology.

So we have refrigeration, lighting and automobiles. What are other examples?

Mr. MILLER. Another example might be multifamily housing, which often has problems with these market forces, in that the people who are paying the bills are not the people who own the apartment, who build the apartment buildings. Often they are low income who cannot afford maybe the initial cost of retrofit. It can be quite expensive.

I think there is a proper role for the Federal Government there, and that is a program that has languished over the past few years from which people could benefit greatly from the increase.

Mr. PUCILLO. I would like to make a comment with regard to that.

Other than states that have passed legislation with regard to saving energy in lighting with their requirements for energy saving ballasts, it might be good to note that many utilities throughout this country have offered rebates to customers to replace their current existing lighting with more energy efficient fixtures.

Senator WIRTH. Will we get a rebate in the Senate? [Laughter.]

Mr. PUCILLO. That has happened across the country. Right now, the City of Milwaukee is changing 175,000 ballasts in the school system to more efficient, in this case electronic-type, ballasts.

Senator WIRTH. So the utilities are probably for this legislation, too.

Mr. PUCILLO. Con Edison in New York and the utility on Long Island in New York have just finished a rebate program. We were involved with the City of San Francisco, where we, I believe, built a product that was changed out by the utility of over 20,000 plus street lights in the City of San Francisco from the older type, less efficient lighting to the more efficient lighting. There are cases like this all over the country.

It would be smart to note that besides what some of the selected states have done who passed legislation, the utilities have dipped into their pockets and said we will subsidize you to make these changes because if we do not, we do not have the funds available to build new power sources.

Senator WIRTH. So the utilities are for this legislation, is that right?

Mr. PUCILLO. I cannot speak for every utility. I would say, generally speaking, absolutely yes, but maybe Mr. Geissler——

Mr. GEISSLER. Yes, the utilities are in favor.

Senator WIRTH. The utilities and State, county and local government ought to be for this legislation; right?

Mr. GEISSLER. Yes. Secretary Pollard, Secretary of Energy for the Commonwealth of Massachusetts, gave a very strong supportive statement during the House hearing. We have spoken to utilities and utility organizations such as——

Senator WIRTH. The State regulators are for it.

Let me just understand this. The utilities are for it.

Mr. GEISSLER. That is correct.

Senator WIRTH. The State regulators are for it.

Mr. GEISSLER. Correct.

Senator WIRTH. The manufacturers are for it.

Mr. GEISSLER. Correct.

Senator WIRTH. All the trade associations are for it; is that right?

Mr. GEISSLER. That is correct.

Senator WIRTH. Conservation groups are for it?

Mr. GEISSLER. Yes.

Senator WIRTH. Everybody is for it, then; is that right? America is for it. It seems like everybody is for the legislation.

Mr. GEISSLER. I think it is a fair characterization to say that the only opposition we have heard has been from the administration. Everyone else is for it.

Senator WIRTH. So the administration, out of what Mr. Geller would call blind ideology—was that your word?

Mr. Geller. That was my word.

Senator WIRTH. The only group that is opposing this is the administration?

Mr. GEISSLER. That is correct, Senator.

Senator WIRTH. Now, what plans do you have for persuading the administration of the virtue of your case? Shame or persuasion or what?

Mr. GEISSLER. We have been working with the administration on similar activities, such as the new commercial building standards and the actuary 90 standards. We have found that by working closely with the professional midmanagement in DOE who are

solid technically and procedurally and who are not in that political overlay but who are the career professionals who have been there and will continue to be there after this administration leaves, that if we can reason with them with members of the industry, gentlemen like Mr. Pucillo and others who are technically competent and knowledgeable about market forces, that we can work out a fair compromise.

We are planning to have meetings with DOE officials. We are planning to comment on the March 4 Federal Register proposed rules. We will be meeting with OMB officials. We will be meeting with people from FTC and Customs.

We find that by using a common sense, rational approach showing broad industry support and working with the professionals, we can do a great deal.

Now, obviously, there is going to come a time when even reason does not prevail, but we have been successful in the long haul by quietly trying to be rational rather than getting up and shouting epithets at one another, which we find not to be very productive.

Senator WIRTH. I appreciate your all being here. Let me just give you one other example of what we can do with conservation, an item that I have been working on.

One of the most inefficient users of energy is the Federal Government, as you all know. Witness the ceiling that we have been talking about here this morning. Military bases also have some enormous inefficiencies. They have been accustomed to having a relatively unconstrained budget, and it has not been a high priority.

We are currently moving legislation through the Congress that would provide incentives to military bases to save energy and that if that base saves the energy, the funding that gets saved will go back into the education of the kids on the base, health care programs, mental health programs, all of the soft programs that are necessary.

Our Army is now, for example, 53 percent married, a far cry from when I was in the Army and, if you all were, a far cry from you were as well; 53 percent are married, meaning there are a lot of dependents, a lot of school problems, a lot of school requirements, and the funding for that is in some of the deepest trouble in the whole defense budget.

So if we can provide an incentive to the military and say to that base commander if you save 10 percent of the energy cost you can use that 10 percent money to go back and put it into programs for dependents on the base, what kind of an incentive do you suppose that provides to the troops on that base to save energy?

It is pretty significant, right, because it is their kids' education that benefits from their energy conservation.

Our commanders think this is a terrific idea. The Pentagon is now coming around, saying that is a really good idea. Maybe the only place where we would find opposition to that would be OMB, because the marketplace would not be working, do you suppose, Mr. Geller? I do not know.

In any case, are there any other words for the good of the order before we finish off?

Mr. Miller.

Mr. MILLER. One more possible program that might benefit would be overseas. A lot of the loans that we have made, either through U.S. aid or through the World Bank or other multilateral groups, have been for energy development loans. They involve a number of environmental problems. We have seen a lot of that in Brazil and now in India and Indonesia.

Energy efficiency might be more cost effective and more beneficial in terms of helping the economy of those other countries. I might suggest that that might be something——

Senator WIRTH. You have probably seen some of the good work that EDF has been doing with the World Bank in terms of getting the World Bank to change their loan policy so that it is less destructive in terms of the overall international environment.

Mr. MILLER. Yes.

Senator WIRTH. I think that is very productive. I guess NRDC has been involved in some of that work, too.

Well, gentlemen, thank you very much. Mr. Pucillo, thank you, sir.

Mr. Geissler, you are the person we should talk to in terms of getting the right package. We will put that together and get you in touch with the building superintendent.

Will you do that?

Mr. GEISSLER. Certainly. Thank you.

Senator WIRTH. Thank you very much.

Gentlemen, thank you very much. The subcommittee will be adjourned. Thank you all.

[Whereupon, at 10:35 a.m. the hearing was adjourned.]

APPENDIXES

APPENDIX I

Responses to Additional Questions

National Electrical Manufacturers Association
2101 L Street, N.W. Suite 300
Washington, D.C. 20037 (202) 457-8400

Daniel K. Shipp
Vice President
Public Affairs

May 3, 1988

The Honorable Howard M. Metzenbaum
Chairman
Subcommittee on Energy Regulation
and Conservation
U.S. Senate
Hart Senate Office Building
Room SH-212
Washington, D.C. 20510

Dear Senator Metzenbaum:

During the March 29th hearing on S. 2167, the National Appliance Energy Conservation Amendments of 1988, before your Subcommittee, two sets of questions were presented. One to Mr. Anthony Pucillo, president of MagnaTek Universal Manufacturing Company, and another to Mr. Richard Geissler of the National Electrical Manufacturers Association. Both testified in behalf of the members of the NEMA Lighting Equipment Division.

To Mr. Pucillo

Question 1 - Energy efficient ballasts are currently available and they produce savings to buyers. Why are they not used in most applications?

The domestic ballast industry has produced energy efficient products for several years both in the form of premium core and coil magnetic ballasts, and in the form of electronic or high frequency ballasts. These products save energy and generally result in substantial savings in operating costs. The problem of market acceptance is not the products, but the market itself.

Better products require more expensive materials, better engineering and greater investment in production. These additional costs are passed on to the lighting system purchaser who quite often is not the one paying the utility bill. In most cases developers of speculative buildings spend as little as possible on capital equipment, and pass operating costs on to tenants. As a result, the lighting market is very price sensitive. Fixture manufacturers constantly strive to keep component (ballast) costs down. The current standard core and coil fluorescent ballast performs well, is safe and meets code. It is also cheaper.

As a result, only about one-third of the ballasts sold today in the categories covered by S. 2167 are energy saving ballasts. The industry believes that without legislative action, this market share will change very little in the coming years, unless there are drastic increases in utility rates.

Question 2 - In testimony submitted for the record, DOE states, "...most ballasts sold in the United States today already meet the proposed standard. Therefore the legislation would do little except impose a new burden on the industry and the government to assure that what is happening already, will continue." What is your analysis of this statement?

Wrong on both counts. As previously stated, about one-third of all fluorescent ballasts covered by S. 2167 sold domestically currently meet the energy efficiency standards. An analysis of the market by the ballast industry shows no significant change in market penetration in the absence of legislative action.

Also, DOE should be reminded that S. 2167 and its companion H.R. 4158 were developed by the industry in response to the growing number of states which have already imposed a variety of energy efficiency requirements. The industry views the federal legislation as a "regulatory relief act" eliminating the plethora of diverse rules. The industry strongly advocates one uniform national rule.

Question 3 - At this time, the only known opposition to this legislation is from the Administration. Does the industry have plans to appeal directly to DOE and OMB to urge their support for this bill?

Yes, absolutely!

To Mr. Geissler

Question 1 - This legislation is different than last year's appliance bill in several respects. Would you please comment on these differences?

Question 1a - The standard would apply to all individual products, not just to an average of randomly selected products.

The domestic ballast industry already has in place a certification system based upon an American National Standards procedure for measurement. Under this program ballast manufacturers already are held to "complete compliance," not to just randomly selected products. The industry strongly endorses S. 2167 and does not see any justification to relax the "complete compliance" standard to which it now holds itself.

Question 1b - The standard would apply not only to the manufacture of ballasts, but also to their sale, and their incorporation into lighting fixtures.

In developing the proposed legislation NEMA lighting manufacturers carefully considered current market practices and production schedules. Under S. 2167, the manufacture of non-complying ballasts would be halted January 1, 1990. Because fluorescent lamp ballasts are relative low-cost products which can be mass produced, it was determined that the best deterrent to "beat-the-deadline" bulk orders, was to establish a deadline for the final shipment last non-complying ballasts. In effect, ballast producers will have until January 1, 1990, to stop producing non-complying units, and until April 1, 1990 (three months) to clear their factories and warehouses of the old units.

A third deadline was proposed by members of the NEMA lighting fixture industry. April 1, 1991, was established as the final date a fixture manufacturer could incorporate a non-complying ballast into a luminaire. Again, this was done to ensure that no one company could capture the market by hording large amounts of non-complying (cheaper) ballasts and using them over a longer period of time.

It is important to remember that through the current pricing system, there is a substantial unit price reduction for original equipment manufacturers (OEMs) placing large orders. Ballasts are relatively small and easy to store, and have an exceptionally long shelf life. Without the April 1, 1991, deadline, it is conceivable that some OEMs could use their purchasing clout together with this legislation to create an unfair market advantage.

NEMA, in cooperation with the Certified Ballast Manufacturers, is developing a self-enforcement package for the April 1, 1990, and April 1, 1991, deadlines. NEMA believes keeping those dates in the bill enhances industry's enforcement efforts, and <u>does not</u> impose a bureaucratic burden on the government. These deadlines ensure that the bill does <u>not</u> allow individual manufacturers to turn energy conservation into a market coup.

Question 1c - When the Secretary of Energy conducts his future periodic review of these standards, he may decide to expand the scope of the standards to <u>other</u> models of ballasts, such as those use in residential applications.

That is a possibility seriously considered by the industry. NEMA has developed a solid working relationship with DOE, and understands the rulemaking process. NEMA manufacturers also realize that new technologies such as ballasts for T8 lamps, and the new compact fluorescent will invite regulation. Given the need to conserve energy and the high likelihood that in the absence of DOE action, various states will again introduce local regulations, NEMA favors this aspect of the law. NEMA members would rather contend with DOE rulemaking, than be forced to return to Congress for additional legislative relief.

Question 2 - In its statement submitted for the record, DOE suggests that section 323(b), regarding test procedures, be made more flexible by including the words "or as may be prescribed by the Secretary." Do you believe that such flexibility is needed and would you object to the Secretary having such authority?

A carefully crafted compromise is essential. On one hand, the industry has worked long and hard to establish a technically sound consensus standard (ANSI Standard C82.2-1984) from which the ballast parameters can be developed for use in computing the recommended ballast efficacy factors (BEFs). NEMA, as Secretariat for the ANSI lighting technical committees, and as the trade association representing ballast manufacturers, cannot endorse any proposal which appears to weaken the voluntary industry consensus standards process by allowing any government agency to interpose its authority. Such authority is neither appropriate nor in the best interest of the end user. Further, it would be technically unsound, procedurally cumbersome and politically unpalatable for DOE to impose additional measurement standards beyond those contained in C82.2 on the ballast industry.

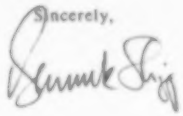
On the other hand, NEMA recognizes that standards do evolve; C82.2-1984 will be revised. A federal statute cannot be put in place which would give industry unlimited power to change a standard and force government to accept it on face value. Therefore, in meeting with DOE officials, industry representatives adopted the position that the phrase "or as may be prescribed by the Secretary" should be included in the bill with the express understanding that it provides the Secretary the option to accept or reject later versions of C82.2 -- without imposing additional measurement standards, or attempting to direct the standards setting process.

It is strongly recommended that DOE let industry do what it knows best, and apply its own measurement standard for testing ballasts to compliance. Further, NEMA and CBM are exploring the possibility of contracting with a nationally recognized testing laboratory to perform the C82.2 measurements. Permitting DOE or an other agency to become involved in ballast performance measurements would not serve the public's interests, and would promote confusion in the market and place an unreasonable burden on industry.

If you have any further questions, please do not hesitate to contact NEMA.

Thank you.

Sincerely,



American Council for an
Energy-Efficient Economy

1001 CONNECTICUT AVE., N.W. SUITE 535 WASHINGTON, DC 20036 (202) 429-8873

April 5, 1988

Mr. Al Stayman
Subcommittee on Energy Regulation and Conservation
Committee on Energy and Natural Resources
U.S. Senate
Washington, DC 20510

Dear Mr. Stayman,

Following the hearing on the National Appliance Energy Conservation Amendments of 1988 held on March 19, I was asked to respond to three questions in writing. Here are my answers along with the original questions.

Q: In its statement to the Committee, DOE says that "Federal regulation more often than not results in a loss of efficiency in the affected industry." Do you believew that these proposed reagulations will make the ballast industry less, or more, efficient?

A: It will definitely make their products more efficient. Representatives of the ballast industry state that only one in three ballasts sold today are energy efficient, and that " The ballast industry vigorously promoted energy efficient ballasts, and found the market acceptance to be painfully slow." (See testimony of Mr. Ernest Freegard, Vice President of Advance Transformer Co., before the Subcommittee on Energy and Power, House of Representatives, March 23, 1988). Of the one third of the market that is already energy efficient, much of this is due to state standards. The proposed national standards will require that all new ballasts be energy efficient by 1990.

Q: Mr Geller, you make the point that reductions in electical demand will save utilities money by deferring the construction of new power plants. Why is this necessarily good, don't power plants contribute jobs, and to economic development?

A: Constructing power plants do contribute jobs and economic growth, but conserving electricity through production and use of more efficient lamp ballasts and other means is much more cost effective. In other words, it costs much less to save a kW as compared to constructing a kW. Thus, conserving electricity will make our overall economy more efficient and productive. Also, producing better quality, efficient ballasts adds economic in this manufacturing industry. Overall, the economy will benefit more from investing in efficient ballasts than constructing new power plants.

Q: You say that this legislation provides a more certain market environment. Why is this important, and how can this one regulated product have a significant impact?

A: Utilities are making forecasts and planning their supply investments 10-20 years in advance. Without standards, they do not know if and when consumers will start shifting to more efficient ballasts in a big way. The standards guarantee this shift, thus making the utility forecaster's job easier.

This one regulated product represents only a small portion of the uncertainty surrounding future levels of power demand, but the savings guaranteed by the standards (and highly uncertain without standards) are estimated to equal 7100 MW by 2000. If utilities built capacity to serve this demand in the absence of national standards, it would cost $10-15 billion. This investment would be at risk because consumers conceivably could shift to more efficient ballasts, or states could widely implement standards. By promptly passing federal standards, utilities will know they don't need this investment.

Please contact me if you have further questions.

Sincerely yours,

Howard S. Geller

Howard S. Geller
Associate Director

Natural Resources
Defense Council

1350 New York Ave., N.W.
Washington, DC 20005
202 783-7800

April 13, 1988

The Honorable Howard Metzenbaum, Chairman
Subcommittee on Energy Regulation and Conservation
United States Senate
Washington, D.C. 20510-6150

Senator Metzenbaum:

Thank you for the opportunity to testify before your subcommittee on 29 March in favor of S. 2167, the National Appliance Efficiency Conservation Amendments of 1988. At the conclusion of that hearing I was asked to respond to a pair of questions regarding the legislation. This letter is intended as a response to those questions.

Question 1: "In your statement you point out that fluorescent ballasts intended for residential applications would not be covered by this legislation. Is there a potential problem here, that the ballasts intended for residential use will end up in the commercial or industrial markets?"

Answer: We do have some concern that this cross-substitution may occur to some extent. This is one reason we are currently negotiating with manufacturers in an attempt to reach a consensus level of efficiency for residential ballasts that could be included in S. 2167. Mandating an increased efficiency for ballasts intended for residential use will reduce the likelihood of substitution by increasing the first cost of these ballasts and thereby reducing the cost differential with the more efficient commercial ballasts that will be required under S. 2167. In addition, the negative impact on energy use of cross-substitution will be reduced if it does occur because of the increased efficiency of the residential product.

Of course it is possible that we will fail to reach agreement with the manufacturers. If so, while we should be alert to the possibility of cross-substitution, we do not expect it will be a major problem, at least initially. We base this belief on the fact that residential ballasts currently constitute only a small fraction of the total ballast market so that production levels would have to

increase drastically in order for significant substitution to occur. This type of change could not occur overnight and is unlikely to go unnoticed.

Finally, if we fail to reach agreement with manufacturers on a consensus efficiency level, and significant cross-substitution is found to be occurring, then we believe that DOE has sufficient authority within the current version of the bill to remedy the problem by regulating residential ballasts. In particular, the Secretary of Energy is directed to publish a final rule no later than January 1, 1992 to determine if the standards established in the legislation should be amended so that they would be applicable to ballasts designed for use only in residential building applications. Thus, should we fail to arrive at a consensus level of efficiency for residential ballasts with manufacturers, we recommend that both DOE and the Congress be alert to the potential problem you describe and that the DOE be prepared to make use of the adequate remedy provided for in the proposed legislation.

Question 2: "You recommend that this legislation be amended to cover plumbing fittings. However, the Plumbing Manufacturing Institute (PMI) has informed the Committee that it is currently negotiating with the National Wildlife Federation on national water conservation legislation. Do you agree with PMI's view that plumbing fixtures would more appropriately be regulated in water conservation legislation, instead of energy conservation legislation?"

Answer: Our basic position is that plumbing fittings waste a inordinate amount of both energy and water and that this problem can best be solved through Federal regulation. The question of the appropriate vehicle for such regulation is secondary to the need that it occur as soon as possible.

As for the lesser issue of which type of regulation is most appropriate, there are persuasive arguments favoring inclusion in energy legislation. First, there is legislative precedent for this approach. The California Energy Commission currently regulates plumbing fittings under a mandate defined in energy legislation. Second, in the majority of jurisdictions energy savings from more efficient fittings outweigh water savings in terms of economic benefit to the consumer. Thus, energy conservation provides a more compelling justification for the efficiency standards currently contemplated. Similarly, energy-based calculations of minimum lifecycle cost will indicate that higher levels of efficiency are cost-effective in determinations of future revisions to the standards. (Of course, even higher levels of efficiency will be justified if both energy and water savings are included in the calculation. We would argue that

this is in fact the best approach.) Third, inclusion of an amendment for plumbing fittings in S. 2167 would increase the likelihood of passage of legislation regulating plumbing fittings during this session because of the significant headstart S. 2167 has on any water conservation legislation that might be introduced later. Thus, inclusion in S. 2167 is also more expedient.

In conclusion, it is our position that there are a number of persuasive reasons why plumbing fittings should be included in S. 2167. In particular, we would recommend that S. 2167 be amended in such a manner if the negotiations between PMI and NWF fail to produce a consensus or if the water conservation bill resulting from such a consensus is unlikely to be adopted this session. Inclusion of standards on plumbing fittings in S. 2167 would not preclude their inclusion in a consensus water conservation bill at some later date. The water conservation bill would just need to be constructed so as to preempt the earlier standards.

Thank you for the opportunity to present our views on these matters. We would be pleased to provide additional information on these or any other questions you might have.

Sincerely,

Peter Miller

APPENDIX II

Additional Material Submitted for the Record

STATEMENT OF

DONNA R. FITZPATRICK
ASSISTANT SECRETARY FOR CONSERVATION AND RENEWABLE ENERGY

U.S. DEPARTMENT OF ENERGY

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

SUBCOMMITTEE ON ENERGY REGULATION AND CONSERVATION

UNITED STATES SENATE

MARCH 29, 1988

Mr. Chairman:

Thank you for the opportunity to discuss the Energy Conservation Program for Consumer Products and comment on the provisions of the National Appliance Energy Conservation Amendments (NAECA) of 1988, S. 2167, a bill to amend the Energy Policy and Conservation Act (EPCA).

The Department opposes enactment of S. 2167. The bill would add fluorescent lamp ballasts to the Department's Appliance Program and would establish energy conservation standards and labeling requirements for these ballasts.

The Department believes that mandatory Federal efficiency standards would place unnecessary restraints on the manufacturers of lamp ballasts. The Administration firmly believes that Federal intervention in the marketplace is generally ill-advised and that Federal regulation more often than not results in a loss of efficiency in the affected industry.

An example of such ill-advised regulation is the Federal Corporate Average Fuel Economy (CAFE) program. Now that market forces have pushed the average fuel economy of the new car fleet beyond the levels set by the standards, the economic distortions caused by the CAFE standards are becoming more evident. Due to the requirements of this regulatory program, domestic auto manufacturers have an incentive to move production of certain types of vehicles to foreign manufacturing sites, thus having a potential negative impact on domestic employment. The CAFE standard is having little or no effect on the efficiency of the on-the-road fleet, but it can hurt the domestic auto industry.

On the other hand, appliance manufacturers continued to improve the energy efficiency of their products during the years in which they operated free of Federal standards. Although continued improvement in energy efficiency is expected under the EPCA program, most of this progress would have occurred in any event because it had been previously included in industry's retooling plans. Analysis indicates that consumers tend to purchase the more efficient appliances regardless of the existence or nonexistence of Federal standards. For example, since 1972 the average efficiency of refrigerators actually purchased improved over 79 percent, freezers improved about two-thirds, and clothes washers showed an improvement of 50 percent--all in the absence of Federal standards.

In the case of fluorescent light ballasts, most of the ballasts sold in the United States today already meet the proposed standards. Therefore, the legislation would do little except impose a new burden on the industry and the government to assure that what is happening already will continue. There is no reason to think that it will not.

Furthermore, we do not believe that any actions should be taken that would discourage the use or increase the cost of fluorescent lighting, because fluorescent lighting is more cost-effective and energy efficient than incandescent lighting.

In addition to these fundamental reasons for opposing this amendment, there are other problems with the proposed legislation. For instance, the Department has technical concerns with the proposal as it relates to program coverage, test procedures, and labeling issues.

The history of EPCA shows that Congress intended a regulatory system for residental appliances. Section 321 of EPCA defines a consumer product as one being "distributed in commerce for personal use or consumption by individuals". The 12 products covered by EPCA are all residential products. The covered products are refrigerators, refrigerator-freezers and freezers, room air conditioners, central air conditioners, furnaces, water heaters, clothes dryers, clothes washers, dishwashers, kitchen ranges and ovens, direct heating equipment, pool heaters, and television sets.

The 277-volt ballast included in the bill is strictly a commercial product. Similarly, 96-inch fluorescent lamps, F96T12 and F96T12HO lamps, typically are for commercial applications. Therefore, we recommend that both of these products be excluded from the bill because they are commercial products outside the original scope of EPCA.

NAECA 1988 would add 277-volt fluorescent lamp ballasts to the list of covered products in section 322 without changing the definition of "consumer product" to include commercial products. If EPCA were amended as proposed, section 322 would exclude commercial products; while at the same time it would also include commercial ballasts. If EPCA is amended to include commercial products such as 277-volt fluorescent lamp ballasts, we believe care should be taken to limit coverage to the residential products presently identified to exclude other commercial products, e.g., commercial refrigerators, from the program. We believe that the inclusion of commercial products is unjustified and would place unnecessary restraints on the marketplace.

The amendments to section 323(b) of the Act are rather restrictive in that they mandate a particular test procedure for ballasts and appear to prohibit the Department from considering any alternative test procedures. It would be better to direct that the test method will be as specified in the leyislation or "as may be prescribed by the Secretary." This will provide the Department the flexibility that we have found necessary to administer our current test procedure responsibilities.

Section 324(a)(1), labeling, should be changed so that "(1) through (9)" is changed to "1, 2, 4, 6, 7, 8, 9, 10, and 12" and that "(10) through (13)" in section 324(a)(2) is changed to "3, 5, 9, 11, 13, and 14". These changes are necessary as a result of the National Appliance Energy Conservation Act (NAECA) of 1987 amendments and NAECA 1988. NAECA 1987 reordered the list of products in section 322 without making the corresponding corrections to section 324. Therefore, the simple addition of the new products to section 324 simply compounds this error.

Section 324(a)(2) of EPCA requires that labeling rules assist consumers in making purchasing decisions. NAECA 1988 would extend this requirement to fluorescent lamp ballasts and would require a capital letter "E" printed within a circle on the ballast and on the packaging of the ballast or on the fixture into which the ballast has been incorporated. This labeling requirement is of little value to consumers because once the standards and labeling requirements are in effect, all products manufactured after that date would have the "E" label. The label would seem to be useless since it would not differentiate the energy performance of one product from another.

In closing, I would like to make my staff available to the Committee to assist in making necessary revisions to the bill so that our technical concerns are resolved. However, I must emphasize that the much better course would be not to enact the proposed legislation.

National Association of State Energy Officials

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WRITTEN STATEMENT OF

SHARON M. POLLARD

SECRETARY OF ENERGY RESOURCES

COMMONWEALTH OF MASSACHUSETTS

ON BEHALF OF THE

NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS

BEFORE THE

UNITED STATES SENATE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

SUBCOMMITTEE ON ENERGY REGULATION AND CONSERVATION

March 29, 1988

613 G Street, N.W., 5th Floor, Washington, D.C. 20001

Chairman Metzenbaum and Members of the Subcommittee:

Thank you for the opportunity to present written testimony to the Subcommittee. This testimony is presented to you in my role as Secretary of Energy Resources for the Commonwealth of Massachusetts, and on behalf of the National Association of State Energy Officials (NASEO), in support of S. 2167.

Since its inception, NASEO has supported cost-effective energy conservation standards as a fair, realistic, and effective means of reducing this nation's energy costs and increasing our energy security. The passage of S. 2167, the National Appliance Energy Conservation Amendments of 1988, would clearly contribute to those goals, and we therefore give it our wholehearted support.

Fluorescent lighting in commercial buildings currently constitutes about one third of the total amount of electricity used in the commercial sector and is a sizable energy expense in most buildings. The proposed standards for fluorescent lamp ballasts will greatly reduce electricity demand and expenditures without substantially increasing the initial costs of lighting. As a result, many businesses will experience a significant reduction in operating expenses.

It is probably safe to say that every office building, every school, every hospital, and every factory in

the country uses fluorescent lights. Over fifty million new fluorescent ballasts are sold every year. By requiring that those ballasts be energy efficient, the savings in energy and money are truly remarkable.

In terms of energy savings, each higher efficiency ballast saves from 10 to 24 watts. with fifty million new ballasts per year, the savings mount up rapidly: it is estimated that, by the year 2000, the standards in S. 2167 will eliminate the need for 7,000 megawatts of new electric generating capacity. That's the equivalent of seven Seabrook-sized nuclear power plants, or thirty-five 200-megawatt small power facilities, without the expense, the environmental impact, or the public opposition which siting energy facilities invariably produces.

In terms of dollar savings, the results are equally dramatic. A study performed by the California Energy Commission found that, while the initial purchase price of efficient ballasts is slightly higher than the "standard", the additional cost is paid back through reduced energy consumption in nine months. The life-cycle savings were found to have a cost-benefit ratio of 35:1. It's hard to think of any business that would object to that kind of cost-benefit ratio.

As the Secretary of Energy Resources for the Commonwealth of Massachusetts, which last year joined New York, California, and Florida in enacting state appliance efficiency standards, I was particularly pleased to note

that the Standards for fluorescent ballasts in S.2167 are virtually identical to those in our state laws, and that states will not be preempted from setting their own standards for ballasts that are not covered by federal law.

S. 2167 is a logical and desirable complement to the National Appliance Energy Conservation Act of 1987. It is supported by the same kind of broad-based coalition of energy, environmental, consumer and business interests that united behind the original bill, and it clearly deserves to be enacted into law. Chairman Metzenbaum and the cosponsors of S. 2167 are to be commended for their leadership and their foresight. On behalf of the National Association of State Energy Officials, I thank you and I pledge our support for this legislation.

85-208 (88)